School Shop

vol. XV no. 10
JUNE 1956

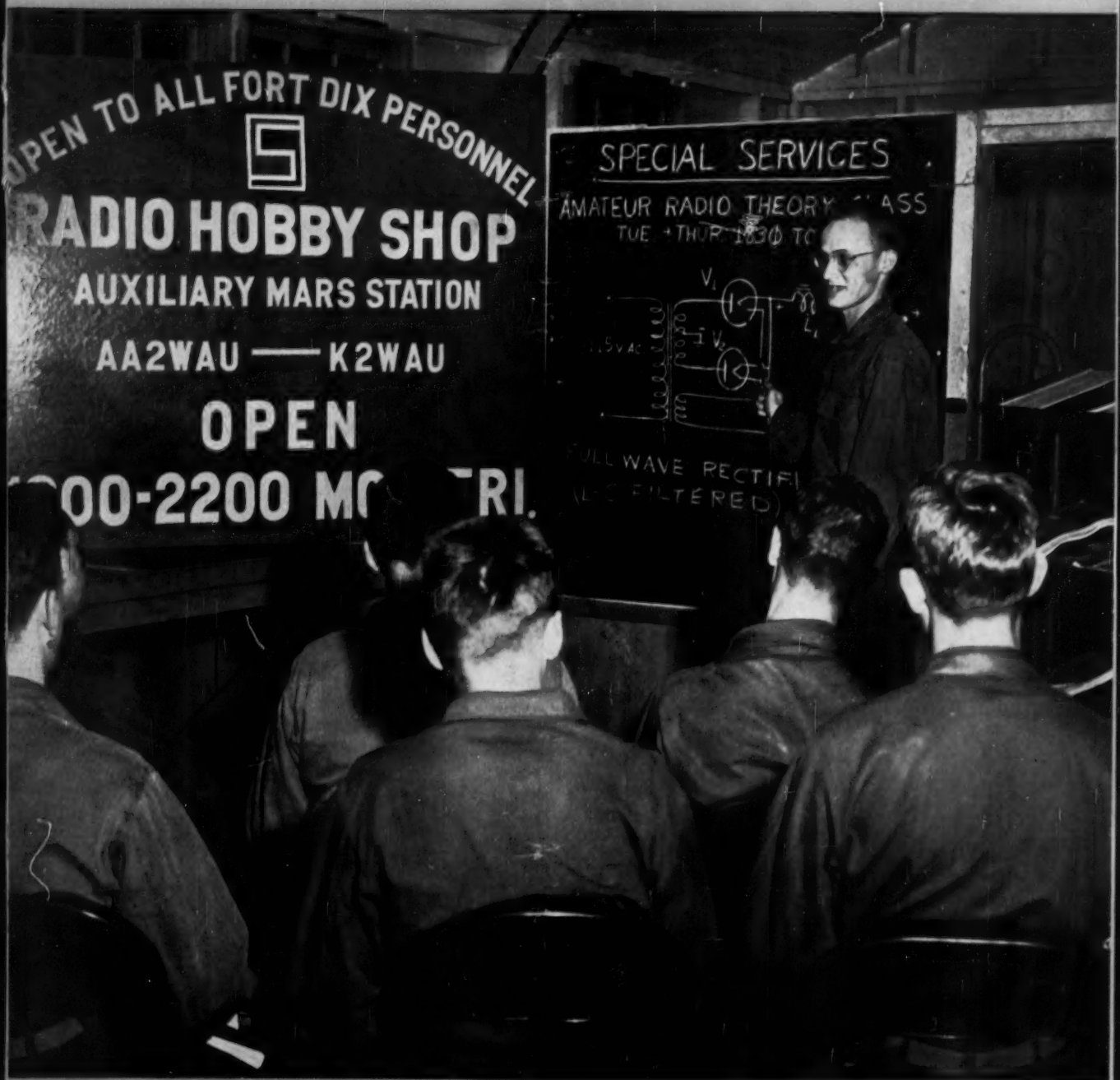
Time for Progress
by R. Lee Hornbake

Tool-Storage Cabinet
by I. Blaine Geyer

"Postparation"
by Fred C. Finsterbach

The Army's Crafts Program
by Anne H. Chick

Cover story: Young men in the Army are learning an after-service avocation in this radio class at Fort Dix, N. J. In classes all over the world, hobbies as well as vocations are offered in a wide range of recreational activities. Story on page 12.



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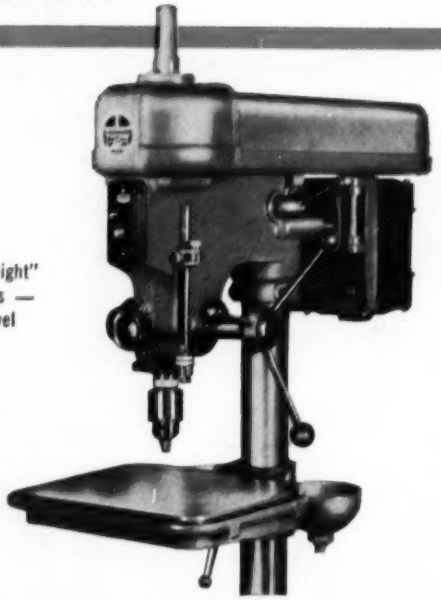

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Vol. XV, No. 10 **June 1956**

CONTENTS

Time for Progress.....R. Lee Hornbake 7
Three pertinent questions and their answers as they affect the development of industrial arts.

Tool-Storage Cabinet.....I. Blaine Geyer 9
A method for storing tools in a neat and compact manner.

"Postparation"—A Method Suggested for That First Project
.....Fred Finsterbach 10
How to get students "doing" and "learning" simultaneously and efficiently.

The Army's Crafts Program.....Anne H. Chick 12
Former shop students will be at home in the armed services craft facilities.

How to Square Up a Board by Hand.....J. S. Turnbull 14
Use this chart to help your students to learn this skill.

Spun Hurricane Lamps.....Franklyn D. Wesley 15
A spinning project that is attractive and useful.

Scriber.....William Guthrie 16
A machine-shop project that your students will like to make.

Planned Public-Relations Program.....Rex Miller 18
How one industrial-arts teacher interpreted his program to the community with astonishing results.

A Compact Library.....George R. Kinsler 20
A solution to the problem of establishing a good shop library.

Portable Coffee Table.....Howard R. Schramm 24
Simplicity and usefulness characterize this project.

What the Boy Can Do.....V. E. Broadbent 38
A method for solving the problem of transfer credit.

Index to Volume XV (1955-56)..... 44

Report of the AIAA Milwaukee Convention..... 47

REGULAR FEATURES

School Shop Talk..... 2
Do Students Get Their Due?

News..... 21
Happenings in industrial education.

Diamond Dust.....Thomas Diamond 25
Sloppy Joe.

Strictly Personal..... 26
About your fellow teachers.

School Shop Kinks..... 28
Short cuts for doing shopwork.

In the Morning Mail..... 31
Comments from readers.

Jigsaw Jones.....Aaron Adams 32
"From the Acorn."

Project Design.....R. A. Tinkham 32
What the industrial designers are doing.

Instructional Resources..... 34
The latest in books, pamphlets, and audio-visuals.

News from Industry..... 40
New products and teaching aids. Send in a coupon today.

From Washington.....Michael Paca 48
News from the Nation's Capital.

Index to Advertisers..... 48

BPA

Editorial and Business Office: 330 Thompson Street, Ann Arbor, Michigan.

Manuscript Information: Manuscripts are paid for at regular space rates and should be addressed to the Editor, School Shop, 330 Thompson Street, Ann Arbor, Michigan.

Subscription Rates: $3.00 a year; Canadian, $3.00 a year; foreign, $4.00 a year. Single copies, 40 cents each except April which is 50 cents. Special group rates for students in teacher-training institutions will be given on application.

Postal Information: Accepted as controlled circulation publication at Mount Morris, Illinois, and Ann Arbor, Michigan.

Advertising Sales Offices:

Chicago 4, Illinois—R. L. (Les) Gray, Western Manager, 53 West Jackson Blvd., Suite 740, telephone Harrison 7-9669.

New York 17, N. Y.—Macintyre-Simpson & Woods, 101 Park Ave., telephone Lexington 2-0020.

Ann Arbor, Mich.—Jerry Patterson, Mid-West Manager, 330 Thompson Street, telephone Normandy 8-7205.

Publication Information: Published monthly, September through June at Mount Morris, Illinois. Printed in the United States of America. Copyright 1956 by Lawrence W. Prakken.

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

Do Students Get Their Due from Day-Trade Classes? (A Guest Editorial)

Preparatory vocational industrial-education programs — day-trade classes — have as their prime objective preparation for entrance into a skilled trade or occupation. This presupposes that an individual who wishes to enter one of the trades can do so more easily, and can begin at a more advantageous occupational level, if he graduates from a day-trade program. In many school communities, this actually does happen. Through the contacts with industry that the teacher maintains, and through community knowledge of the excellence of the program in that community, young men do have opportunities to begin at desirable levels which would be denied those who did not have the benefit of the same school training.

These cases, however, are all too few. Too often the potential apprentice who has gone through a day-trade program has no advantage over those who follow a different program in high school. In general, no credit toward the apprenticeship period is given for day-trade schooling.

These programs of preparatory training cannot flower to their fullest extent, nor can American youth reap the benefits that should rightfully be theirs, until such programs are recognized by schools, labor, and industrial management as valuable experiences in achieving the occupational goals of the students who participate in them.

In isolated instances, day-trade classes are recognized as having sufficient merit to warrant advanced status in apprenticeship for those who have successfully completed the program. In most cases, this is not true.

If this program is to offer maximum opportunity for youth in this swiftly advancing technological age, the problem of recognition of excellence, if such is the case, must be tackled head-on.

Vigorous preliminary steps should be taken at the national level. Action will result from the agreements of local groups, to be sure. But this will be stimulated and expedited greatly by broad policies agreed on nationally by the agencies concerned — industry, labor, the apprentice-training service, and education.

Specifically, in the interest of American youth, there should be established at the national level a committee, relatively small, representative of the agencies mentioned above, who can give objective attention to developing sound principles concerning the effectiveness and acceptance of various types of preparatory vocational industrial training programs.

Such a committee might logically be the Labor-Management Committee of the American Vocational Association, which, under its able chairman, made gratifying headway on many problems last year.—*William B. Hawley, Head, Department of Vocational Education, Michigan State University, East Lansing.*

The WHC Committee Speaks on Vocational Education

Vocational education got back into the White House Conference on Education picture with the issuance of the report to the President of the committee responsible for the Conference. One of the goals to which the committee gives the nod is: "Vocational education tailored to the abilities of each pupil and to the needs of community and nation." This is more than the conference itself said last December.

The group warns, however, that "Overspecialization of vocational education should be avoided. There are almost 50,000 trades in this country, and specialized instruction for all of them cannot be provided. Broadly conceived programs of vocational education must be maintained which are not likely to be outmoded rapidly by technological change and which offer basic instruction that can be useful in many jobs."

No stand was taken by the committee for the White House Conference on federal reimbursement for vocational education although it did state that general federal aid for school operation "can be justified . . . only on a temporary basis to meet an emergency situation . . ."—*L.W.P.*

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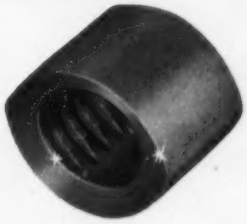

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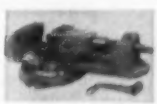

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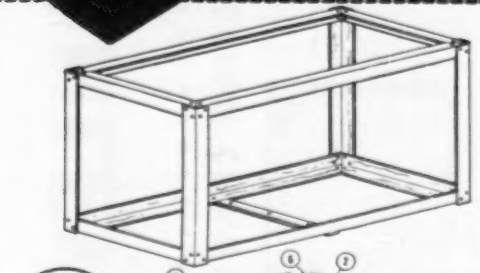


LIST OF MATERIALS

3—6 foot lengths of 1" x 1/16" aluminum angle

29—3/32" x 1/4" aluminum rivets

2—1 lb. cans of aquarium cement

Approximately 8 square feet of 7/32" crystal glass

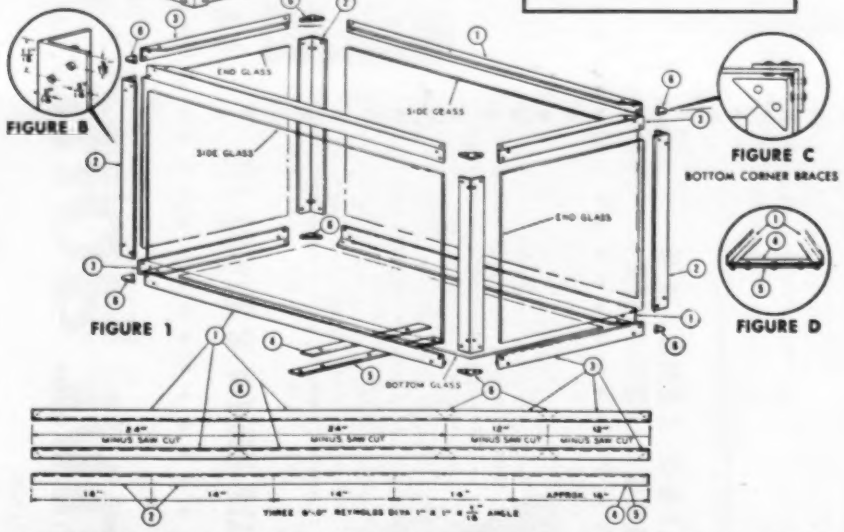


FIGURE B

FIGURE C
BOTTOM CORNER BRACES

FIGURE D

FIGURE 1

CUTTING PROCEDURE WITH EITHER HAND OR POWER TOOLS

HAND TOOLS. The aluminum angles can be cut easily by using woodworking tools. (A big advantage for shops without metal working equipment.) Clamp to miter box to prevent slipping, as shown at left, and use hacksaw.

POWER TOOLS. For safety and better accuracy screw strip of wood to miter gauge of power saw. For duplicate length cutting, clamp a stop block to this wood strip.

FABRICATION OF ALUMINUM AQUARIUM

MEASURING FOR GLASS

The Bottom Glass—Measure the length and width inside the frame and subtract 1/4" from each of these measurements. The resulting 1/8" opening between glass and frame is for a cement seal.

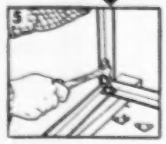
The Sides—Measure the width and height of the side framework on the inside and subtract 1/4" from width and 3/8" from the height. Have two glasses cut to size.

FIGURE E

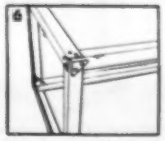
FIGURE F

The Ends—The height of the ends will be the same as the height of the sides. Measure the width of the ends and subtract 7/8". The end glass goes between the side glasses. See drawing. Have two glasses cut to this size.

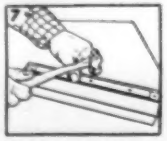
Assembling part 2 to parts 1 and 3 with 3/32" x 1" aluminum rivets.



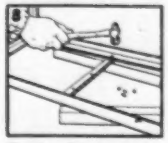
Riveting top corner braces marked 6 to parts 1 and 3.



Bottom corner brace is riveted to parts 1 and 3 on outside of assembly.



Bottom center support made up of parts 4 and 5 riveted together.



Riveting bottom center support to bottom side angles marked 1.

After all glass is in place, each 90 degree corner is filled with cement.

INSTALLING THE GLASS

Use a good aquarium cement to secure the glass in the framework. Follow directions.

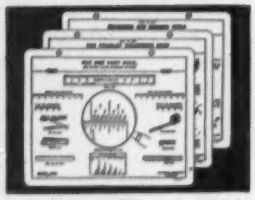
Roll a small ball of cement into a pencil sized strip between your hands and place it in the bottom of the framework. It can then be pressed into a semi-flat condition with your fingers. Put a layer of cement about 1/8" thick around the entire bottom of the framework and insert the glass, leaving a space 1/8" all around between the glass and framework. Press down firmly on glass until you see the cement begin to squeeze out. Any open spaces can be filled with cement with a putty knife. Place the aquarium on its side and repeat procedure for side glass.

Install both sides. Since the ends are installed between the sides, be sure you have enough cement in the corners.

After all glass is in place, each 90 degree corner is filled with cement. See figure 9 and figures "E" and "F." Heavy dark lines indicate cement. The top of the sides and ends are filled with cement as shown. Remove excess cement on outside of aquarium with putty knife. Allow aquarium to stand for a day to partly set the cement. Fill with water and allow to stand for a day. You will notice that cement will again squeeze out. Trim off with putty knife. If bulges or bubbles appear at the 90 degree corner fills, press down with your fingers.

STANLEY SHOP TALK

INSTRUCTION CHARTS



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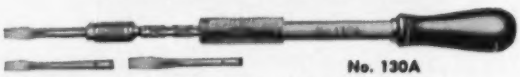

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Time for Progress

By R. Lee Hornbake
University of Maryland, College Park, Md.

IT is essential that industrial-arts educators should pause occasionally to take their bearings. Industrial-arts education is linked to the technological aspect of our culture, and our technology is subject to unceasing change. We need constantly to examine our assumptions and our practices to make certain that the world of events has not moved far ahead of us. In this process we should look outside the confines of our professional pathways for landmarks which mark the progress of our civilization and our way of life.

There are three observations, presented in question form, which serve as a point of departure. If satisfactory answers are available to these questions we shall have the vision essential to professional progress.

The first question is suggested by Arnold Toynbee, the celebrated English historian: Why have 25 civilizations developed, prospered, and then waned or perished?

The observations of Alfred North Whitehead, the educator, are the source of the second question: Why do educational institutions make a significant contribution in one epoch and then become intellectually sterile at a later date?

The third question relates to individuals. Why is it that creative individuals, after making significant contributions to their respective fields of work, frequently alter their action patterns and become "road blocks" to progress?

Pertinence to Industrial Arts

Industrial-arts education actually is a miniature civilization. The human efforts which create civilizations and the human shortcomings which lead to the breakdown of civilizations are operative in industrial-arts education as well. And, since industrial-arts education always prevails in some school of learning, Whitehead's question applies directly to industrial arts. Then, since it is individuals who originate and develop ideas, the question of change in outlook from dynamic creativeness to the maintenance of *status quo* is an issue of fundamental importance to industrial-arts leaders.

Let us look at these questions briefly and one at a time.

Toynbee, after raising the question of why civilizations have prospered and then perished, came to accept and support one explanation, known as "challenge and response." A civilization develops, according to Toynbee, when a group of people are confronted with a severe challenge or series of challenges which they strive early to overcome and do so successfully. The solution to the challenge must be one which permits succeeding challenges to arise—and thereby keeps the people on their toes—rather than a solution which eliminates further challenge.

Toynbee's examination leads also to the finding that within great civilizations there is always a creative minority, a group of persons who are able to isolate the basic problems of the society and who are also able to work out satisfactory solutions to these problems. Civilizations begin their downward spiral when they no longer encourage or permit the continual development of new creative minorities.

Much of the same conclusion must be associated with the second question arising out of Whitehead's observations. Whitehead says, "Every intellectual revolution which has ever stirred humanity into greatness has been a passionate protest against inert ideas. Then, alas, with pathetic ignorance of human psychology, it has proceeded by some educational scheme to bind humanity afresh with inert ideas of its own fashioning." This judgment of Whitehead, pertaining to education, parallels that of Toynbee concerning civilization.

Carried now to the third level—to the level of the individual—the same circumstances apply. Individuals may lose their creativity, too. A person may be highly motivated to meet a demanding challenge, only to find satisfaction not in the process of solving new problems but rather in the security of living in a world of solved problems. He seeks to keep things as they are so that *his* ideas will continue to prevail.

The net results of this brief exploration are these: Survival and progress for a civilization, for an institution, or for an individual depend on the search for a solution of difficult problems, and the touchstone is creativity—creative minorities and creative individuals.

Development of Industrial Arts

Although training or education in the practical arts is as old as modern man, schools, once established, were verbal-literary institutions. The modern American high school, a post-Civil War institution, while professedly oriented in the lives of the people, did not at first show as much responsiveness to the needs of the youth as had the early academy. But industrial arts, then called manual training, had its creative minorities and its creative individuals. Such men as Calvin Woodward, John Dewey, Charles R. Richards, and Frederick G. Bonser made significant contributions to the industrial-arts program.

By the middle 1930's, industrial arts had come to be an accepted part of the public-school program in many states, particularly at the secondary level. The idea of multiple activities either through comprehensive general shops or by way of several unit shops was accepted in theory. Greater pupil participation in the planning of work and in the operation of the shop was making inroads into teaching practice. All these changes had been initiated by creative minorities and against strongly entrenched opposition.

Now, with this accounting of the past we should devote our attention to the present and immediate future.

Problems Today and Tomorrow

The continued vitality of industrial-arts education depends on the profession's ability to identify its present-day problems and to provide satisfactory solutions to these problems. Creative individuals must be encouraged to explore the educational frontiers and to invent practices which appear promising. There will be duds among these educational inventions since the price of progress is the acceptance of failures as well as successes.

Our present-day problems may be classified under a series of headings. One category is definable as "content and method." Three aspects of the content and method problem are examined in the paragraphs which follow.

Re-examination of Our Sources of Content.—Rather restricted experiences in woodworking, metalworking, and technical drawing continue to characterize industrial-arts instruction. This condition is, in part, traceable to the circumstance which prevailed during the formative years of our profession, say between 1880 and 1910. But since the turn of the century there has been a technological revolution and many new industrial phenomena have appeared. This new age is characterized by the extensive use of electrical energy accompanied by numerous electrical and electronic machines and devices; the internal combustion engine and its manifold applications, including the automobile and airplane; and a host of new metals and metalworking processes. The graphic arts industry has undergone many changes, too, in the way of new processes and new applications. Nuclear sources of power are at hand, and this single innovation may soon come to mean more than any other of man's creations.

In the developmental phases of the basic and applied sciences a relatively few top-level people carry the responsibility. But the effective production, application, use, and maintenance of the instruments, machines, and goods which result require technical competence on the part of the masses of the people. A primary personal and social contribution of industrial-arts education is precisely this dual task; namely, the development of technical competence among the millions and the discovery of a variety of technical talents. These goals can be achieved only if children and youth are provided with representative experiences.

The program to date has been characterized by having pupils perform rather simple tool and machine processes in changing the shape and size of common materials. Where the instruction has been effective, manipulative skill development has resulted. People still need manipulative skills, to be sure, but they need to apply many of these skills in conjunction with principles. For example, a person adjusting a carburetor uses hand tools with dexterity but he should know principles of carburetion and principles of internal combustion engines as well. Of course the effective technician needs a variety of skills—multiple research skills, communication skills, social skills, evaluation skills.

Whether we approach the problem of content from the viewpoint of correctly representing the industrial aspect of our culture or whether we take our lead from the traits and talents of children and youth, we are committed to a new synthesis of areas represented in our industrial-arts program as well as new emphases within the areas now commonly found in the program.

Redefinition of Instructional Procedures.—The stated ends or objectives of industrial-arts teaching are remarkably diverse. We teach for a variety of skills, for functional knowledge, for principles and understandings, for personal-social development, for competence in planning, for selfdirection.

If these objectives are to be realized there must be developed a concept of instruction compatible with these ends and a corresponding range of teaching-learning procedures.

The problem of refining instructional procedures is somewhat more complex than it appears on the surface to be. Our instructional effort is presently exerted in the direction of teacher-centered demonstrations and lessons on related information. The additional or other methods which are needed are commonly known and appear in many books on teaching and learning. But when industrial-arts teachers who are aware of other teaching procedures endeavor to incorporate them into their project-structured industrial-arts teaching they are confronted with unexpected difficulties.

In the each-one-make-one-project-construction procedure, demonstrations are concretely helpful to the pupils. So, too, are lessons related to the tools and materials. Hence the teacher carries on these learning activities with satisfaction and apparent results. But when he undertakes a pupil-personnel system, it works not primarily in the interest of developing skills of social interaction but instead becomes a means for getting the shop cleaned up at the end of the period. Similarly pupil-teacher planning, a procedure intended to be in part a problem-solving approach becomes a copying procedure with the pupils reproducing a drawing or sketch and listing the construction steps from a master plan or from the blackboard.

Methodology is at the most a body of techniques for accomplishing desired ends. But how shall we conceive these ends? Are we to use experiences taken from the arts of industry to discover and develop the traits and talents of boys and girls, or are we to think of our content as a body of adult-centered skills and knowledges which we are obliged to develop in the neuromuscular systems of pupils? Obviously the teacher-assigned or teacher-suggested project, accompanied by paced demonstrations and a few related lessons or sheets in a workbook, implies a preference for the latter. The diverse learning outcomes claimed for industrial arts cannot result from this limited teaching.

Present practices are deeply imbedded. Many industrial-arts teachers know of no alternative and most preservice and inservice teacher-education programs follow the plan which in no fundamental way differs from manual arts. More defensible instruction will result only as creative minorities develop new procedures for interested practitioners to observe and compare with their own.

Preparation of Appropriate Instructional Materials.—Any change either in our content or in our methodology has direct implications for the instructional materials needed to operate the program. The texts which are available today follow a relatively uniform pattern paralleling the instructional procedures described previously. The teacher who chooses to teach the conventional areas in the conventional way finds adequate textbooks if he desires to avail himself of them. The books feature common processes, accompanied by some related material and suggested projects.

We are lacking texts based on other assumptions of teaching and learning from which the teacher may choose. The industrial-arts teacher must either use texts that present relatively superficial tool and machine processes associated with changing the size and shape of common materials or he must do without. If the industrial-arts teacher seeks a book which explores the various phases of significant industry or if he seeks one which treats the basic features of manufacturing industry, he comes up empty handed. In this regard we run well behind our practical arts colleagues in agriculture and the home arts.

Reference materials other than texts and suitable instructional aids, particularly films and movies, are similarly neglected.

Progress, of course, must come from within the profession. Commercial publishers cannot be expected to produce books that will not sell. They will, however, provide the texts which large numbers of the profession request. Perhaps the initial start will have to come through locally prepared instructional materials created as part of inservice

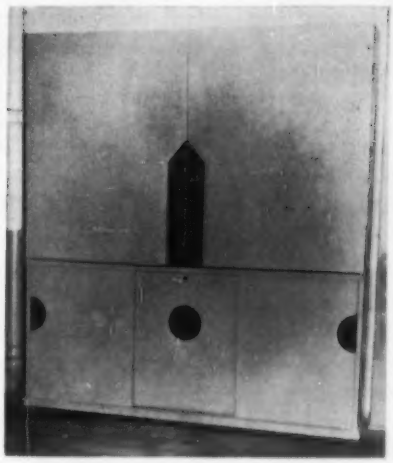
(*Continued on page* 16)

Many sizes, many types are accommodated in this

Tool-Storage Cabinet

By I. Blaine Geyer

Spring City, Pennsylvania, High School



When closed the cabinet is a neat, compact unit.

THIS tool cabinet was recently made by senior-high students but is versatile enough to adapt for home use . . . perhaps on a smaller scale. And with the trend for home workshops on the upswing, small-tool storage space has become a problem.

This unit provides storage for quantities and many types of hand tools. Various methods of holding tools in an easy-to-get but secure manner are used. Sliding panels separate quantities of the same tool that may be used in weekly classes from those used by a number of students every day.

Dimensions of the cabinet, when closed, are 7'4" high x 6'6" wide x 1'1" deep. Tools with tapered handles such as screw drivers, coping saws, files, and gouges are supported in a holder made by boring a series of holes in a strip of hardwood and exposing the edges of the holes by sawing the front of the strip off. Size of the hole is determined by size of taper on handle of tool. This leaves a crescent-shaped opening in which a tool may be quickly and easily placed and the weight of the tool will hold it securely (Fig. 2). Slots and rectangular holes are used for wood chisels and try squares (Figs. 3 and 4). Steel squares are held in place with a tin pocket in which the short side of the square is placed. Compass, hand, hack, and bench saws are supported by using the conventional turn-button fastener in this manner and up to units of three are held securely (Fig. 7). Wooden and rubber mallets are held in place with a wood ring and commercial tool clip (Figs. 5 and 6) and tool clips are also used for hammers. A tin pocket holds pliers (Fig. 8). Sandpaper holders are held in place with a short dowel (Fig. 1).

Storage facilities for a number of small electric machines such as portable sanders, portable saw, router, drill, hand grinder, taps and dies, dovetail attachment, etc., are in the bottom of the cabinet. ★

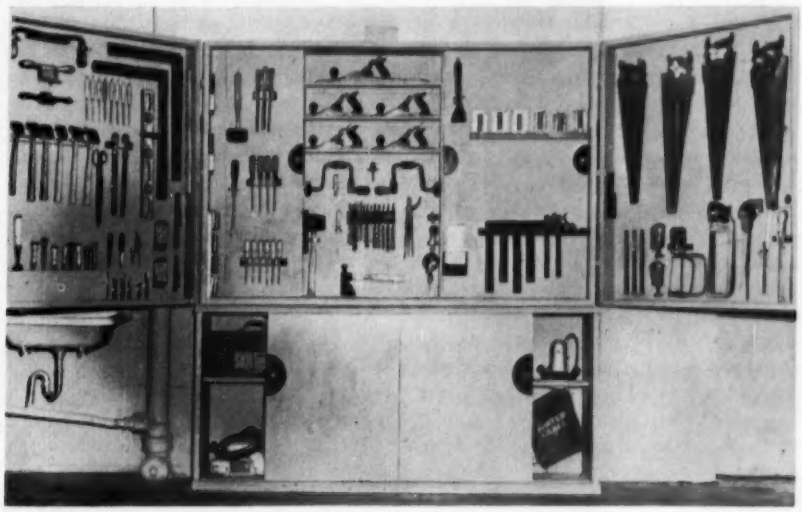


FIG. 1.

FIG. 2.

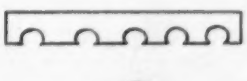


FIG. 3.

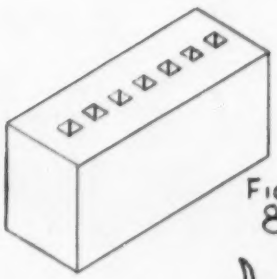


FIG. 4.

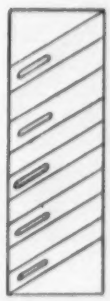


FIG. 5.

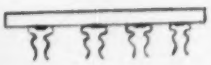
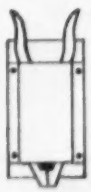


FIG. 6.

FIG. 7.

FIG. 8.



New students start work on a project the first day they enter the shop

"Postparation"—A Method Suggested for That First Project

By Fred C. Finsterbach

Education and Training Consultant,
Berkeley Heights, New Jersey

IN a winter resort in New England a couple of young ski instructors have started teaching beginners by the simple expedient of shortening the skis. Despite the howling dissent from the orthodox and competing teachers, the young instructors have had phenomenal success. They have had more interest, shorter terms of instruction, fewer tumbles, and many more satisfied students.

It is likewise possible that a slight change in educational methods, especially in industrial education, could bring about similar achievement in terms of student interest, accomplishment, and satisfaction. The tendency to teach "as we were taught," to ape and revere the methods of bygone days often without the slightest deviation, has caused probably more disinterest in school-taught subjects than old buildings and inadequate equipment.

In industry "methods engineers" are under continual pressure to devise easier, faster, and less costly ways to make every part of the product. No such pressure exists in the schools. Consequently teaching methods are slow to change.

In few subject areas is the opportunity to utilize interest so great as in industrial arts. Yet many teachers, tied to standard methods and imbued with the idea of "preparation" as a necessary precursor to activity, take up an inordinate length of time before getting the students started on actual work. The thought of activity first, followed by factual learning, would seem to be a schismatic reversal of all that is held near and dear in education. Such a method of approach, however, is the one proposed here, backed up by extensive experience that indicates its value.

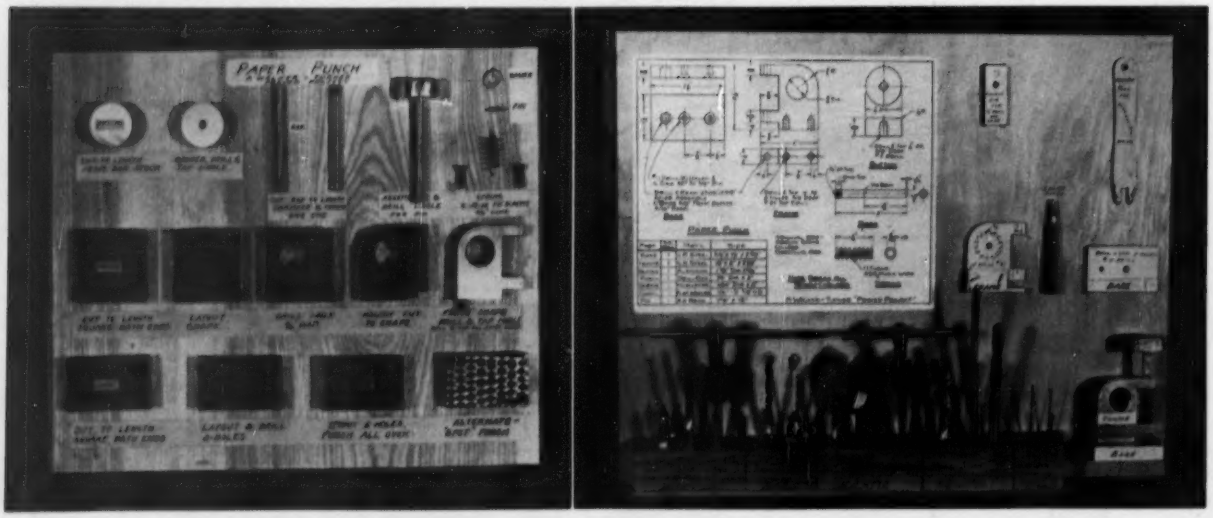
For lack of a better term, this method is called "postparation." It consists essentially of getting new, unskilled students to work on a selected project within 15 minutes after they enter the shop for the first time.

No originality is claimed for this method. It has been used successfully in industry where it was necessary to indoctrinate adult salesmen of woodworking and metalworking machinery in the operations and capabilities of a variety of tools in the shortest possible time. Because of its proven success with more than 700 adults of all ages and with heterogeneous backgrounds, "postparation" is also advocated as a method of teaching in the school shops, especially for the first project. It will permit shop students who normally might take from September to Christmas to complete their first project, due to the time spent in tedious lectures, long demonstrations, reports, and plain prattle masquerading as preparation, to finish the project in a few hours instead of many days.

The *selected* project is essential to this method. Lest the creative purists start too early to protest, it should be emphasized that creativity cannot thrive in a climate where the teacher himself is not creative, who is unwilling to deviate, who does not himself dare to be different in an attempt to find a better way. The exact project selected is unimportant so long as it is pertinent to subsequent activities and contains basic elements of interest to the student. In fact, activity alone, as such, has many interest factors that are too often ignored.

It also must be emphasized that the *whole project must be completely pre-*

Under the "postparation" method, new students start to work on a selected project within 15 minutes after they enter the shop for the first time, with the help of a teaching aid, such as shown left, a tool and template panel, such as shown on the right, and an operation sheet giving details of work.



pared by the teacher. All the operations must be rehearsed by him, as many of the "bugs" as possible must be anticipated and provided for, all of the templates and other aids must be on hand. All of this so that little or nothing can go wrong. It is here where the creativity, the ability, and the imagination of the teacher is brought out. "Postparation" never excuses the teacher from "preparation."

The elements of the "postparation" method would include the following. (In this case the project selected was the paper punch illustrated on page 10.)

1. The students are shown the completed selected project. Its functional use is quickly demonstrated.

2. The basis for the selection of the project is stated, with emphasis on its merit as a learning medium rather than an end product (though this is not entirely discounted).

3. Logical names are given to the related parts to establish nomenclature and identity.

4. Each part is isolated for development and the successive operations outlined with reference to the instruction form, the parts chart, and the tools or machines used.

(Time to this point—about four minutes.)

5. Special reference is made to the method of speed changing of drills, to the need for special care in tapping, for use of the V-block for sensitive drilling, and for care in line drilling and reaming operations.

6. How to start and stop the machine, how to provide for depth stop drilling, the use of holding devices, and the principle involved in diagonal cutting are quickly demonstrated.

(Time—five minutes additional.)

7. Centering on the lathe, tapping a hole, and turning of the button is demonstrated fully. This is the only full demonstration.

(Time—five minutes.)

8. Reference is made to the templates, the print, the gages, and the necessity for using only the tools preselected and set up on the board. Emphasis is given to the immediate replacement of the tools after use.

(Time—about one-half minute.)

9. The class is split arbitrarily into three sections to prevent bottlenecks on the machines. One-third will start work on the base, one-third on the frame, and one-third on the button and punch.

(Time—about one-half minute. Total time—approximately 15 minutes.)

With only these preliminaries, work on the project begins, assisted thereafter by a combination of follow-the-leader, trial and error, and reference to the teaching aids. The instructor acts from this point on as an observer, reference resource, and checker, moving about to watch progress and to insure safety.

With the paper-punch project, the small springs, washer, pin, and screws were furnished, although the spring ends were ground to seat flat by each individual. In most cases the project was finished in 2½ hours. Almost all students were finished in three hours unless one wanted a super finish or broke a tap in his work.

At first glance this unusual approach to a project would seem to be fraught with many dangers and almost devoid of any educational worth. But, from experience, the worst that has happened were a few barked knuckles from the abrasive disc and overheated fingers from not quenching the stock soon enough.

From an educational viewpoint, no time, of course, was spent dwelling on the composition of the material, no reference was made to the history, tolerances, or classification of the tools, and only general reference was made to the necessity of a slow speed for large drills, high speed for small drills, and the need for lubricants. The prime objectives of the procedure were: to maintain interest, to cover basic operations and set-ups, to make a presentable, functionally useful product, and to promote an inquiring attitude and a thirst for greater knowledge.

Under the "postparative" procedure pertinent questions can—and do—arise which are as reasonable and productive of real learning as any that could have been put previously as "preparation." Certainly at the "postparative" point, the questions have real meaning based on personal experience not available at the preparation period to anyone except the instructor. Furthermore, the "steam" has been taken out of the students, and because of certain little slips and errors curiosity is aroused. Students really want to know *why* some had trouble-free assembly while others had bound punches that could be freed only by repeated reaming or lapping with special compound. Others, concerned with slight misalignment between the base and frame, are interested in what might have been done to prevent it, or what might still be done to correct it.

No one can measure the amount of learning that takes place in an instant of observation or a minute of experience. An attempt can be made, however, to appraise it by responses to the selected following questions which did arise naturally as a result of individual or group effort. It is likely many readers will agree that they have substance.

1. What happened to those pieces of stock which were cut directly on the line? Did it make any difference in the function of the punch? Under what conditions would this practice make a difference? What can be done in the cut-off operation to insure dimensional accuracy?

2. Why is it necessary to countersink the screw holes in the base? How can we determine the necessary depth? How can we get both countersunk holes to identical depth?

3. Why is this particular countersink bit (82°) used? Why not 45° or some other angle?

4. Why did we drill and ream the punch hole only *after* assembly? What might have happened if we had drilled each part separately?

5. What effect did reaming have on the line drilled hole?

6. What is the purpose served by the counterbored hole below the punch entrance in the base?

7. During construction, why is the finger hole drilled in the frame before the part is cut to shape?

8. Why were the screw holes drilled deeper than the screw could possibly reach?

9. Why is the spring made ¼" longer than the space provided for it?

10. Why is a very slow speed used for the large diameter countersinking on the finger hole? Why is a very fast speed used while drilling the 1/16" hole in the punch?

These are only a few of the many questions arising that can be considered *after* the project is made, when experience gives them more meaning.

It should be understood that this method is not proposed as the one to be used with every project, or that only projects selected by the instructor should be imposed on the student. The proposal will serve its purpose if it provokes some thought concerning the validity and necessity of so much preparation that interest is diminished or even lost entirely as a result of adherence to methods which often have only old age to their credit. ★

Which Issue Was It In?

A complete indexing of articles and authors of the year's contents of SCHOOL SHOP appears in this issue on pages 44 and 45. We believe you will find it a great help in locating articles which you wish to refer to again.

Soldiers at Fort George G. Meade, Maryland, working on their off-duty time in the crafts shop at metal enameling of jewelry pieces.

Weather at 60° below zero does not deter these GI's from working in a cloth-covered quonset hut in Alaska at projects in woodworking.

The ex-shop student will find familiar activities when he joins the armed services and tries out

The Army's Crafts Program

By Anne H. Chick

Crafts Advisor, Adjutant General's Office, U.S. Army, Washington, D.C.

TO the young man entering the Army today, "Special Services" offers a wide choice of recreational activities. The United States Army is increasingly aware of the value and benefits, both to the individual and to Army, from wholesome and constructive use of off-duty time. The Army crafts program is one of the many facets of the comprehensive recreational program conducted by the Special Services Division of The Adjutant General's Office.

In Army crafts shops, opportunities are provided to fulfil the need for all types of creative and constructive activity. Whether a man is assigned to an isolated battery in Korea, or in the heart of a large metropolitan area in the United States, one of the 900 crafts facilities provided by the Army is available for his use. Facilities vary in size and scope of program according to location and the number of troops served. A crafts shop may be a small quonset hut in Japan, a room in a service club in Europe, or a newly constructed two-story building in the United States.

Large crafts shops have equipment for woodworking, photography, ceramics, leathercraft, drawing and painting, jewelry, lapidary, model building, and many other crafts. In addition to arts and crafts, plans for new crafts shop construction provide for the growing interest in technical and mechanical activities. Interests which rank high in popularity include woodworking, photography, automobile repair, radio, lapidary, and model building.

Woodworking equipment may range from hand tools to a full array of power machinery. In Korea, where electric power is limited, woodworking is accomplished with hand tools. An outpost in Alaska boasts a crafts shop which is housed in a Jamesway (a cloth covered quonset hut) with snow insulated windows. Small as it is, the equipment in this shop includes a power saw and jointer which are put to constant use by men building furniture and toys. Most crafts shops are equipped with basic power tools: table saw, drill press, jointer, jig saw, and sander, while many large woodworking shops have a complete range of power machinery with sanding, finishing, and painting rooms. Under the competent supervision of professional civilian crafts directors, enlisted men are employed in their off-duty hours as instructors. Many soldiers who were cabinet makers and skilled woodworkers in civilian life have found that they could continue their craft in the Army and at the same time receive remuneration.

It has been noted that the majority of men active in the woodworking shop have had some previous training in high school; however, some are beginners, receiving their first supervised instruction in the Army crafts shop. Finished projects range from simple construction in plywood to custom designed furniture. A fine example of a completed project was a chair and ottoman set designed and built by a young private for competition in a recent Army crafts contest. The young man was so interested in his handiwork that the crafts director encouraged him to weave the fabric covering on the nearby loom. The resultant piece of furniture, with its hand woven upholstery, was a source of pride and satisfaction to the soldier, as was the prize he won!

Automobile repair is one of the newest and fastest growing crafts activities in the Army. This facility provides a place where participants can work on their cars with automotive tools and equipment. For example, the large auto crafts shop at Fort Carson, Colorado, offers facilities for timing and tune up, brake repair and adjustment, steam cleaning of engines, body and fender work, major engine overhaul, battery charging, and numerous other small maintenance and repair jobs. The work is done by the

men themselves under the guidance of skilled soldier mechanics.

Safety and roadability of vehicles prompted the establishment of auto crafts shops. At Fort Richardson, Alaska, the need for auto-repair facilities was recognized when more and more soldiers were attempting to repair their automobiles on post parking lots, many under severe weather conditions. Although auto repair is comparatively new in the Army crafts program, there are today auto crafts shops in operation on Army posts in the Pacific, the Far East, and Europe, as well as in the United States. Although savings alone is a strong motivation for a man to do his own repair work he realizes also a sense of accomplishment and security in being able to do a proficient job on his own car.

Perhaps the most popular activity in the entire Army crafts program is photography. Since an estimated 75 percent of all military personnel own and use their own cameras, the Army encourages this activity by means of its well equipped photography darkroom facilities. Many photo labs, in addition to equipment for developing and enlarging film, have special portrait studios, projection rooms, and exhibition rooms for camera clubs. In oversea areas, foreign nationals are employed as instructors, while in the United States skilled enlisted men teach photography. Through the medium of photo clubs, field trips, contests, exhibitions, or classes of instruction, a high quality of work is encouraged in this active program.

Interests vary in different geographic localities and climates. A growing activity on the West Coast and in Alaska is lapidary. "Rock Hound" clubs make trips into the desert, the mines, and mountains on rock collecting expeditions. When members return to the crafts shop they utilize the slab and trim saws, the grinders and sanding machines to cut, shape, and polish their stones. Often the "lapidarist" progresses from this activity into the jewelry section of the crafts shop where equipment and instruction are available for him to set the finished stones into a handsome piece of jewelry. Other soldiers may find further interests in minerology and geology as a result of this stimulation.

Radio, although not as widespread as other crafts, has an avid following once the activity is established. Radio repair and construction is usually initiated by men who have had training in school or who are assigned to the Signal Corps and wish to work in this field during their off-duty time. This activity encompasses instruction from the building of a simple radio to classes in high fidelity. The crafts shop at Fort Dix, New Jersey, holds regular classes in "Hi Fi" which are supervised by a corporal who worked as a professional audio design engineer prior to entering the service. Another crafts shop, in Toyko, Japan, has a complete amateur radio station built by members of the radio club, from which calls are made to families and friends in the States.

Model building of all types is carried on in crafts shops, with a particularly active program among troops in the Far East. Model airplane clubs hold competitions among their own members, other clubs, and between the Services. Although the beginner may start out by building his model plane from a simple kit, many men soon construct models of their own original design. The natural urge to tinker with engines, the satisfaction of fine craftsmanship in the finished airplane, the elation of learning to perfect the mechanics of flying, all add up to a worthwhile and stimulating recreation.

Building of model airplanes, model trains, boats, and racing cars is especially popular with the Army's new recruits. Model flying circles, as well as car- and boat-racing circles, have been installed at Army installations to accommodate these avid fans. Great numbers of men who show no interest in other crafts are reached through model-building activity, both as spectators as well as participants.

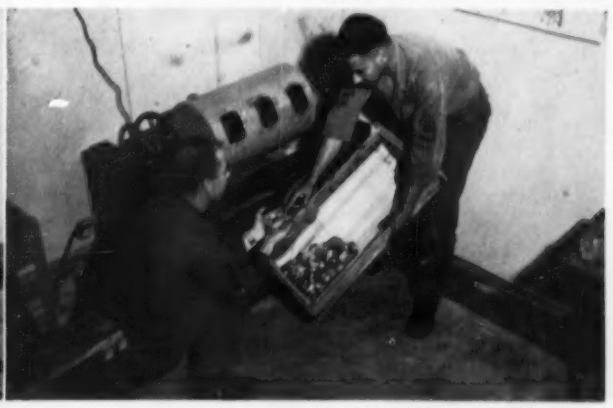
The Army's provision for a multiplicity of crafts in a centralized location is of distinct advantage to the participant. The man constructing a radio can follow through his project by building a cabinet in the woodworking shop. The "lapidarist" can avail himself of the tools and instruction in the jewelry section to mount his stones in a ring, belt buckle, or bracelet. Under the guidance of the professional crafts director, each participant is encouraged to incorporate good design, as well as craftsmanship into his projects.

Americans like to make things, to tinker, to experiment. They want to know how a thing works, to get the feel of it. The Special Services Division of the Adjutant General's Office has taken full cognizance of this natural bent. Through its recreational crafts program it offers each individual the opportunity to use his leisure time in a constructive manner.

With shortening of the civilian work week throughout the United States, more and more citizens are finding themselves with leisure hours to spend. The time utilized by the citizen soldier in the Army crafts program will establish habits and attitudes toward constructive use of his "off-duty hours" which will return with him to civilian life. And the development of skills in recreational crafts pursuits will increase the attractiveness of Army life for the prospective soldier, as well as better equip him to face the future! ★

Model plane building is a very popular leisure-time activity of today's citizen-soldier. These enthusiastic young servicemen are located in Japan.

Soldier "rock hounds" based in Arizona have an off-hours lapidary shop with some of their equipment home made such as this tumbler.



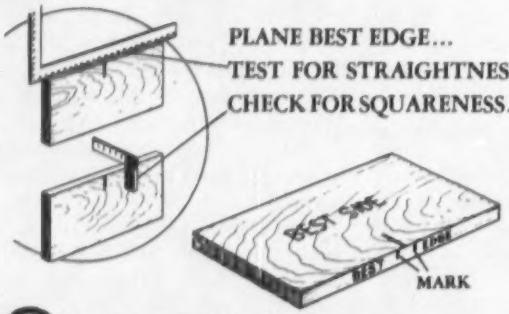
how to square up a board by HAND

1 THICKNESS...

BUY LUMBER S2S (SURFACED TWO SIDES) TO DESIRED THICKNESS ... **OR** ... RUN THROUGH PLANER (S2S) TO THICKNESS.

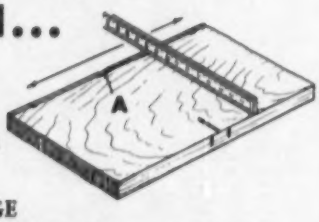
~~THICKNESS~~ × WIDTH × LENGTH

2 BEST EDGE...



PLANE BEST EDGE... TEST FOR STRAIGHTNESS, CHECK FOR SQUARENESS...

3 WIDTH...

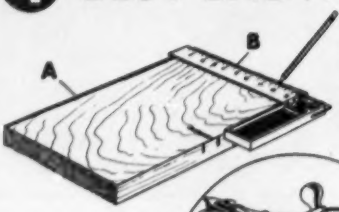


MEASURE... MARK FOR WIDTH AT BOTH ENDS... USE STRAIGHT EDGE TO DRAW LINE **A** THROUGH THESE TWO MARKS...CHECK BOTH ENDS WITH A RULE.

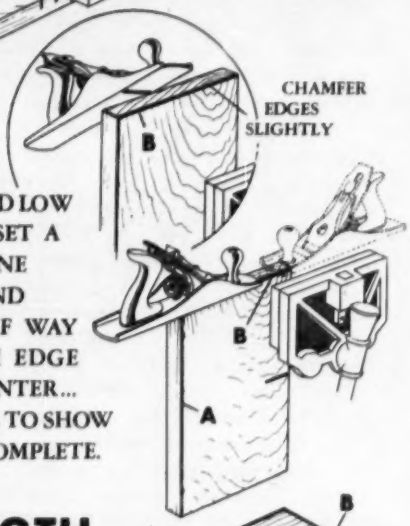
PLANE TO LINE **A** ... LEAVE LINE **A** TO SHOW STEP **3** IS COMPLETE.

~~THICKNESS~~ × ~~WIDTH~~ × LENGTH

4 BEST END...

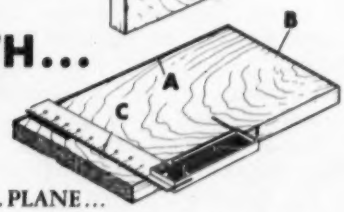


MARK LINE **B** AT BEST END USING TRYSQUARE.



*PLACE BOARD LOW IN VISE ... SET A SHARP PLANE SHALLOW AND PLANE HALF WAY FROM EACH EDGE TOWARD CENTER... LEAVE LINE **B** TO SHOW STEP **4** IS COMPLETE.

5 LENGTH...



MEASURE FOR LENGTH ... SAW ... PLANE... LEAVE LINE **C** TO SHOW STEP **5** IS COMPLETE.

~~THICKNESS~~ × ~~WIDTH~~ × ~~LENGTH~~

NOW THAT THE BOARD IS SQUARE, AND AFTER ALL TOOL WORK SUCH AS BORING HOLES, ETC., HAS BEEN COMPLETED, SET A SHARP PLANE SHALLOW AND PLANE OUT ALL MACHINE SURFACER MARKS . THEN SAND.

NOTE:
- **STEP ONE:** PROVIDES THE THICKNESS OF THE BOARD.
- **STEP TWO:** PROVIDES A STRAIGHT EDGE FROM WHICH TO MEASURE.
- **STEP THREE:** PROVIDES THE ACTUAL WIDTH OF THE BOARD.
- **STEP FOUR:** PROVIDES A SQUARED END FROM WHICH TO MEASURE.
- **STEP FIVE:** PROVIDES THE ACTUAL LENGTH OF THE BOARD.

*If edge of board is chipped because of planing all the way across, glue chip back in place, holding it with glued paper until set.

Some prefer to do Step **4** and **5** before Step **3**, but planing end grain is a beginner's opportunity to learn what it means to set the chip breaker close and work with a sharp plane set shallow

The above chart can be used as a teaching aid by pasting it on cardboard and hanging it in a conspicuous spot. Coloring parts with pencils adds to student interest.

By J. S. Turnbull

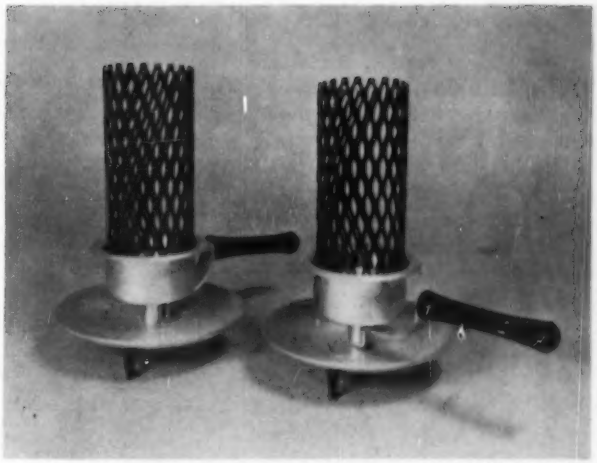
Monroe Junior High School, Seattle, Washington; author of "Modern Woodworking Projects"

Join the move toward metal spinning with these

Spun Hurricane Lamps

By Franklyn D. Wesley

E. O. Smith Junior High School, Houston, Texas



Ford Motor Co. Photo

This attractive pair of spun aluminum lamps won a prize for its eighth-grade maker, Kenneth Hooper. Plastic can also be used for the shade.

METAL spinning as a school-shop activity is increasing in popularity. These spun hurricane lamps show what can be done in this medium and why it is attractive to both students and teachers.

When making lamps such as these, the pupil has an opportunity to learn metal spinning, metal turning, wood turning, brazing, tapping, and wood and metal finishing.

Three wood chucks are required and a fourth would facilitate the construction although it is not absolutely essential. When spinning the shade holder (*B*), a fourth chuck called a break-down chuck could be used to simplify the spinning process. All chucks should be made from a good grade of bird's eye maple. Enough space should be allowed between the back of the chuck and the faceplate for trimming and cutting off.

The dimensions on the drawing should be used for making the chucks. After turning, the chucks should be sanded with a fine sandpaper and glazed with beeswax on a felt pad.

Spinning the base (*F*) is relatively simple but the shade holder (*B*) and the candle holder (*C*) require more skill. Use 2 S-O, .064 aluminum for all spun parts. This is a heavy-gage metal and requires quite a bit of pressure to work. Use a slow speed of about 500 rpm for part *F* and a blank 7½" d. Metal tools work best. The wide-nose tool, round-nose, and back stick are essential. A beading tool simplifies turning the bead on *B*. Beeswax is the best lubricant.

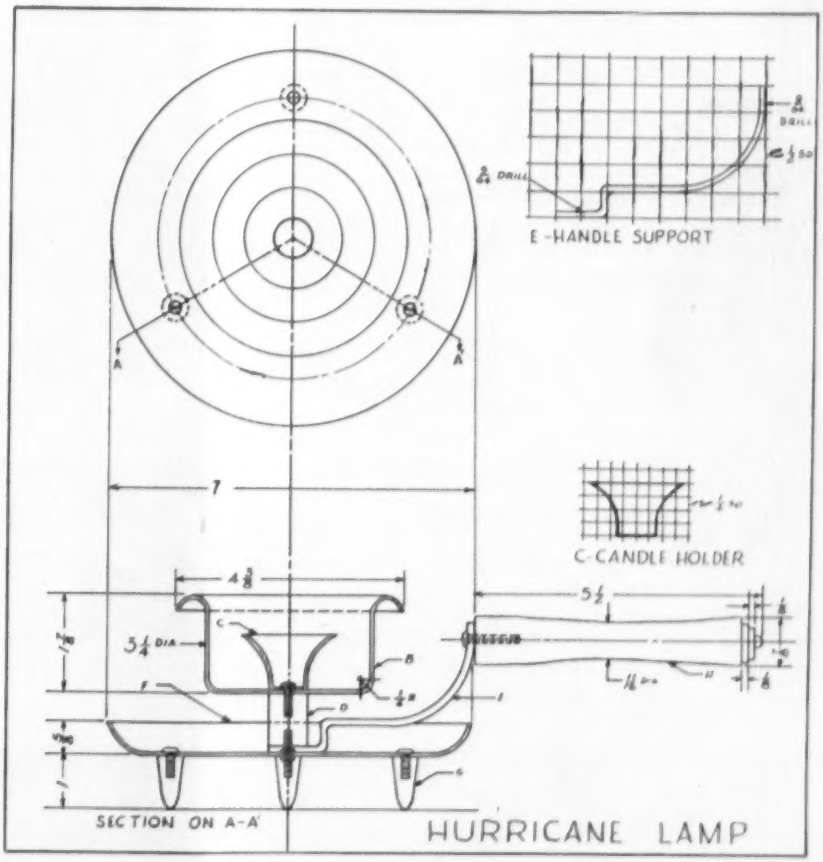
Part *B* can be spun next. If a break-down chuck is used, be certain that the end diameters of both chucks are identical. Use an 8" d blank. After the blank has been laid down on the breakdown chuck, transfer it to chuck B. Play the wide-nose tool close to the follow block to make sure the blank is set properly.

When making part *C*, use a 4" blank and a higher spinning speed. Be sure the follow block is secured tightly to the blank and use the round-nose tool to start the breakdown. After the blank has been broken down to the end of the chuck, the wide-nose tool can be used to finish. The assistance of a back stick is needed here. A funnel shape is important to prevent a fold up or a breaking

(*Continued on page* 16)

Parts List

No.	Description	T	W	L
A	Shade	18g.	9½	7¾
B	Shade holder	.064	8	8
C	Candle holder	.064	4	4
D	Support	¾	¾	1
E	Handle support	⅛	¾	5½
F	Base	.064	7½	7½
G	Legs	½	½	1
H	Handle	⅞	⅞	5½



Lamps . . . . . *from page 15*

of the blank at the follow block. Parts *B, C,* and *F* should be finished with No. 180 emery, No. 240 emery and oil, steel wool and oil, then clean with turpentine. Buff with tripoli followed by white rouge.

Part *D* is made from a 1" length of ¾" aluminum rod. Drill and tap for a ¾" 6-32 screw at both ends. Emery and polish.

The legs (*G*) are made on the machine lathe. Set the compound rest to 85°, turning the taper for a distance of 1". Face the large end and round off the small end. Drill and tap the top of the legs to receive a 6-32 machine screw.

Expanded metal is used for the shade which is shaped on the forming machine to a 3" d. Braze the joint so that the pieces match and cannot be easily noticed. Sand-blasted plastic or other types of metal may be substituted.

Use maple for the handle.

Black lacquer is used as finish for the shade, legs, and handle. If a spray gun is not available, a thinned-down solution of lacquer can be prepared and the parts dipped, repeating until the desired finish is secured.

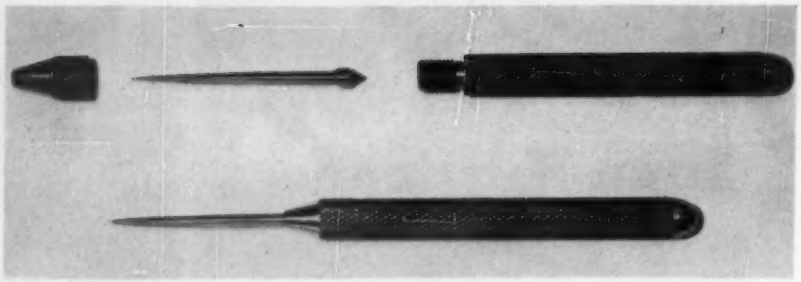
The finished lamp gives the maker much satisfaction. Student Kenneth Hooper won a first place in the Ford Industrial Arts Awards for eighth-graders with the lamp shown here. ★

Progress . . . . . *from page 8*

programs or at the college level as part of the preservice and graduate programs.

The changes which are suggested may or may not occur. If not, it seems highly probable that industrial arts will continue to serve less than half of the secondary-school male population. The technological aspect will likely be absorbed by the physical sciences, a trend which a review of science textbooks will indicate. The social-economic implications may be assumed by the social studies. Industrial arts may well become a therapeutic digression from the ongoing educational enterprise, an activity located in a shop where pupils can go to make gadgets, twist Western Union splices, and learn to replace washers in faucets. This would indeed be a sad ending for a subject area that has its origins in one of the wonders of the world, American industry, and which has "learning by doing" as its professional birthright. ★

IF YOUR PLANS INCLUDE A CHANGE OF ADDRESS before the next school term, be sure to notify the Circulation Department, SCHOOL SHOP, 330 Thompson St., Ann Arbor.



This scriber has a replaceable point with a cap to hold it in place. A number of machine shop operations are involved in making this attractive and very useful school shop item.

Your students will like to make this

Scriber

By William Guthrie

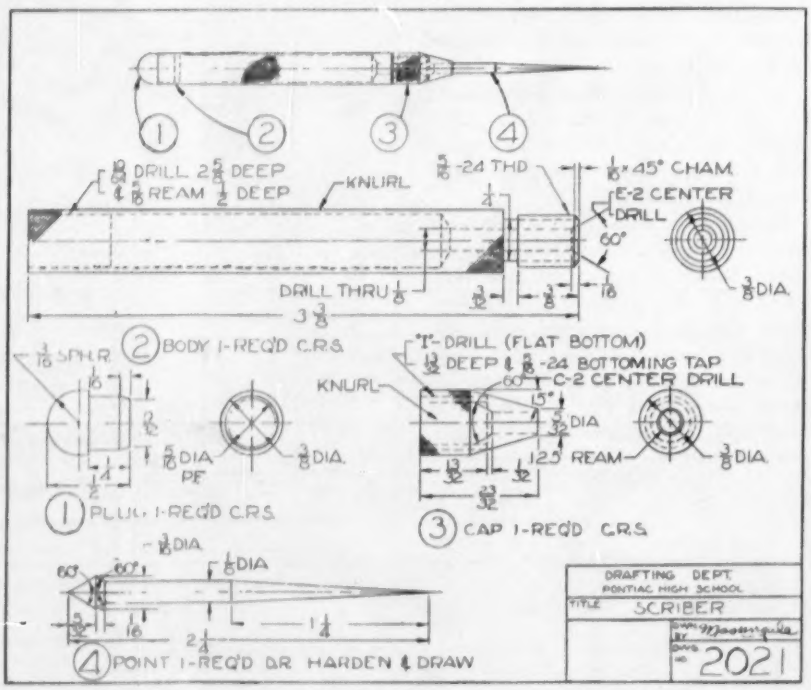
High School, Pontiac, Michigan

STUDENTS like to make small items in the machine shop that they can use personally and that have utility. This motivation can be used in making the scriber shown here which involves many standard machine-shop operations. The scriber can also be made for use in the shop as it is one of those small perishable tools which needs replacement often.

We really wanted a scriber which has the features of a popular manufactured tool usually found with a hexagonal cap and a reversible, replaceable point. However, this type of tool is made so that it would be very difficult for students to construct in the average school shop. It has a thin-walled collet-type point holder which is split with a very thin cutter and compressed by a screw-on nosepiece.

We substituted for this construction a 60° seat in the handle and a 60° end fitting on the point as shown in the accompanying drawing.

For instructional purposes the fabrication of the scriber can be set up as a production job. Other shops will welcome this useful tool as will the student who makes it for his personal use. ★



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Greater Stability

Greater Table Area

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These youngsters were seen by WHO-TV viewers. Left is David Miller and his sewing cabinet; center is Richard Carzoli and Bob Floto and an electric circuit board, used in industrial-arts classes; right is John Good with a swivel-top table which he made. The TV station is in Des Moines.

Results go hand-in-hand with a

Planned Public-Relations Program

By Rex Miller

Ankeny Consolidated Schools, Ankeny, Iowa

PUBLIC relations is ever-present in the life of the industrial-arts teacher. It is not to be thought of at the beginning of the school year and then dismissed as a good idea, but it is something which demands attention all through the year.

All teachers realize their opportunities to mold personalities, help give youngsters direction, cultivate abilities, and to hold the interest of students they come in contact with daily. But very few parents know what is going on in an industrial-arts program unless the instructor makes them aware of it. And the instructor is the only one who is fully capable when it comes to showing just what is going on in school and during the shop periods. An exhibition of projects is one of the best means of *showing* what is going on to those who want to *see* what has been done.

The situation I am in is tailor-made for a strong public-relations program. Prior to the time I started with Ankeny Consolidated Schools, the only industrial-arts course being taught was woodworking. It was a good course and well taught. However, the superintendent thought it was a good idea to give students a variety of experiences in different industrial processes.

By writing articles for the local newspaper I presented to the public the new courses which were being offered for the first time. Our local paper has been very cooperative and given a lot of space to help promote the program. Local radio stations have assisted by making announcements of events to be held at school and the TV station sent out a photographer to take pictures for two news telecasts.

As a result of the year's work, and, no doubt, the public relations, we have added six new areas this year and have hopes of expanding in the near future to cover more areas and presenting the program to all grade levels. It is good to remember, however, that without the cooperation of the school administrators, the faculty, and the students, it is impossible to promote and handle a successful campaign of public relations. ★

Rex Miller

Here is a sampling of a few of the news stories which appeared in the *Ankeny Times* and the Des Moines *Tribune* during the first year's planned, and successful, public-relations program.

ANKENY, IOWA FRIDAY, NOV. 5, 1954 10th ANNIVERSARY YEAR

A Little Encouragement Goes A Long Way

Industrial Arts Builds Character & Confidence

EDITORIAL

Industrial Arts Students Learn "What's Behind The TV Screen"—

Industrial Arts Exhibit at Ankeny

Students Can Explore A Variety of Subjects

Receive More From Schools

Arts and Industries—

Ankeny School System Grows With Community

Announcing

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A new handbook published with the young machinist in mind

The MACHINISTS READY REFERENCE BOOK is a pocket-sized handbook containing nearly 100 carefully selected reference tables and charts covering mathematical information; drills; tapers; screw threads; milling, shaping, turning; gears; weights, gages, tolerances; and general information.

- Valuable, Selected Data
- Convenient Size
- Priced Right

More than 120 pages of valuable data—information most used and needed by the young machinists in school shops as determined by a survey of machine-shop teachers. Small enough in size—4 1/8"x6"—so it can be carried easily in a shop-apron pocket, but big enough to contain the vital information needed daily in the machine shop. And priced so that each student can afford to have his own copy.

CONTENTS

Mathematical information:
13 tables including decimal equivalents, triangle formulas, tables of squares and square roots, area of plane figures, trigonometric functions, properties of the circle, useful mathematical information, etc.

Drills:
8 tables, including grinding twist drills, drilling speeds, feeds for drills, cutting speed tables, decimal equivalents of drill sizes, etc.

Tapers:
8 tables, including standard and general dimensions, rules for figuring tapers, milling machine standard tapers, etc.

Screw Threads:
9 tables, including basic thread dimensions and tap drill sizes, screw thread systems, American National pipe thread dimensions, counterbore sizes, constants for finding pitch diameter and root diameter of screw threads, etc.

Milling, Shaping, Turning:
13 tables, including feeds and speeds, sharpening miller cutters, tooth rest settings, plain and differential indexing, shaper cutting speeds, cutting speeds, lubricants for cutting tools, spindle speeds for turning and boring, etc.

Gears:
7 tables, including gear tooth dimensions, rules and formulas for bevel gear, worm gear, worm wheel, helical gear, and spur gear calculations, etc.

Weights, Gages, Tolerances:
10 tables, including weights of steel bars, U.S. Standard sheet metal gage numbers, standard wire gages, standard keyways and collar diameters, woodruff keys, tables of sines, pin measurements, gage sets, etc.

General Information:
10 tables, including miscellaneous machine shop formulas, metric measures, hardness conversion table, grinding wheel markings, general steel information, etc.

- Publication Date..... About July 15th
- Price..... $1.50 (tentative)

Edited to fill a need . . . Priced to fit the pocketbook

A check of the contents above will indicate the value of this book to your students in machine shop. You will want all of them to have their own copy. And they can afford to at the low-cost price. Use the coupon to reserve a copy for you as soon as this new handbook is off the presses. Desk copy available on request when the book is adopted for classroom use.

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If space is a problem, here's a design for

A Compact Library

By George R. Kinsler

School of Vocational Education, La Crosse, Wisconsin

IF you're in need of a small, compact library . . . one that will serve you well and also be easy to check for properly returned reference textbooks I believe you will find this design efficient. Materials needed include Masonite, ¾" plywood, and a few woodworking tools.

Survey your reference material to determine the size of each compartment and the number of books to be placed in it before dimensioning your drawing. Standard size for my automotive texts and references was found to be 1½" x 10" x 7". A 12" depth was chosen because few books exceed this. Individual blocks should be cut to hold books out from the back of the bookcase so the front will be even though depth of books may vary. Overall size is an individual matter, however, my bookcase was dimensioned 1' x 2' x 8'.

Number the textbook section and number the books so each student can return the book to its proper slot. Separate each book from the other by a Masonite separator so each book stands alone; thus, there is only one place to which it can be returned.

My shop manuals are grouped according to manufacturer and a diagonal stripe is painted on them so they also will be returned to the correct place. Each stripe of each is of a different color so they cannot be switched as to the category. These stripes also serve as a clue when a book is missing.

Numbered and color-coded so books will be placed correctly, this library is easily maintained.

For proper pamphlet storage, easily handled storage boxes were designed. Made of sheetmetal, the boxes stand upright and content is labeled on the front. When pamphlets are to be used, a box can be passed along with each student taking one. At the end of the period, the box can be passed back and all pamphlets are returned in good condition, properly stored.

Maintenance of this library should not be left to the class in general. Instead, give one student the responsibility for checking the contents each day or at the end of each period.

Old and obsolete material must be discarded periodically or the bookcase would never hold all the reference material that may be obtained. The person who never disposes of anything old soon fails to add something new. ★

B-G's NEW AC-DC POWER SUPPLY UNIT BENCH for all school electrical shop applications

- A complete packaged unit — wired and ready for use — just connect to 110 v. power.
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- Adequately protected by fuses — solidly constructed of birch plywood.
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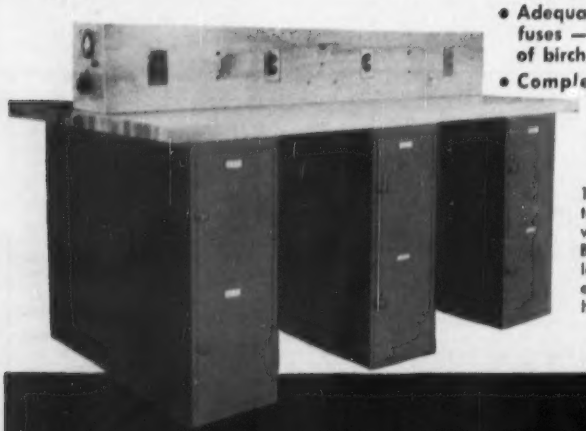

MODEL ET 10

1¾" laminated maple top (72" x 48"), fitted with ET 6 power unit. Base contains 12 steel locker openings, 6 on each side. Overall height 31¾".

Price $325.

The Power Supply Bench provides a complete packaged unit source of AC-DC power for the school electrical shop. It is wired and ready for use by simply connecting it to a 110 volt power source in the shop. The entire unit is fused for safety purposes.

ET 10 has the following power outlets: Eight 110 volt AC receptacles, two combination 6-12-18-24 volt AC tap stations, and four DC stations which provide DC power in a continuously variable voltage range from 0 to 30 volts. These four DC stations are controlled from a central position on one end of the unit. Thus the instructor can set-up an experiment for all students and be assured of the same voltage throughout. The DC circuit is of sufficient capacity to handle all current loads up to 10 amps.

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happenings in industrial education

New State Officers

NEW officers for 1956-57 have been chosen by several state industrial-education and industrial-arts associations at their annual conventions this spring. Received before this issue went to press, and not previously noted in these columns, are:

Indiana Industrial Education Association. Floyd Dickey, John Adams School, South Bend, is the new president. William James, Anderson Senior High School, is vice-president, and H. G. McComb, Indianapolis, is secretary-treasurer. The 1957 convention of the association will be held April 11-13 at Purdue University, West Lafayette.

Washington Industrial-Arts Association. Charles B. Thuot, Kennewick Senior High School, was elected president at the annual convention held in Spokane, March 30-31. Melvin Kirkland, Pacific Prevocation, Seattle, was named vice-president; and Wallace Bennett, Kennewick Junior High School, was chosen secretary-treasurer. The 1957 convention will be held in Kennewick.

Illinois Industrial Education Association. At the annual convention in Peoria, March 22-24, Richard H. Sanders, district superintendent, was named president. Vice-president for trade and industry is Howard J. Jones, director of industrial education at Mount Vernon. Vice-president for industrial arts is Wallace W. Buffmire, Evanston. And vice-president for personnel and guidance is Edward Ruddy, East St. Louis. James W. Crowe, director of Chicago Vocational school, is treasurer. The association will hold its convention next year in Chicago, April 4-6.

Michigan Industrial Education Society. H. Edwin Rowley, Berkley, is the new president, elected at the annual convention in Detroit, April 12-14. He succeeds Harold C. Hill. The new vice-president is Herbert J. Cigard, Lansing. Eugene B. Watkins, Bay City, was re-elected executive secretary and treasurer, and Carroll A. Osborn was renamed *Newsletter* editor. The 1957 convention will be held in Grand Rapids.

California Industrial Education Association. George Chambers, Richmond, was chosen president at the March convention of the association. Lyman Goldsmith, Los Angeles, is the president-elect. Jack Reynolds, Sacramento, is vice-president, and Lee Bodkin, University of

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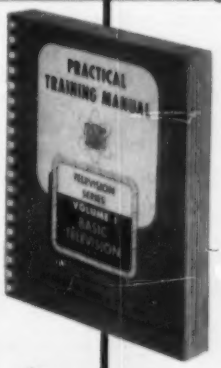

"BASIC RADIO MANUAL"

This is the widely used, comprehensive Training Course in Radio. Includes 36-Lesson Section covering basic radio theory, terms, circuits and symbols, components, test instruments, radio transmitting and receiving principles, etc. The 13-Project Section demonstrates theory in practical action by actual doing; includes construction projects, application of basic laws, soldering practice, demonstration of components, construction, etc. Adopted as standard text by hundreds of schools for practical, effective training in Radio. Manual contains 248 pages; fully illustrated. 8½ x 11". Order ED-1, only $5.00

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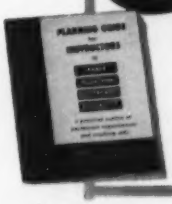

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California, Los Angeles, is secretary-treasurer.

New York State Vocational and Practical Arts Association. John Storm, associate professor of industrial arts at State University Teachers College, Oswego, was elected president at the recent annual meeting in New York City. He succeeds Mrs. Mildred Pascale, principal of Queens Vocational High School, Long Island City. Mr. Storm's election marked the first time in the history of the organization that a person actively engaged in the industrial-arts profession has been named to head the group.

Printing Conference

"CREATIVE Printing — Its Place in Graphic-Arts Education" will be the theme of the annual conference on printing education, to be held at Santa Barbara College, University of California, August 5-10.

More than 250 graphic-arts teachers from U.S., Canada, and Mexico are expected to attend the meeting, which is sponsored by the International Graphic Education Association. Otis H. Chidester, head of the printing department, Tucson Senior High School, Arizona, is the current president of the Association. General chairman of the conference planning committee is Kermit A. Seefeld, chairman of the department of industrial arts at Santa Barbara College.

Contest Policy

A POLICY to regulate vocational schools in entering contests was recently issued by A. W. Johnson, Montana's state director of vocational education, in an effort to reduce the evils of competitive events.

"If contests and other competitions are used as an integral part of the total educational program involving all students, not just a few; and if such events stimulate and vitalize teaching and learning, then there is little difficulty in justifying them on an education basis," the policy states. "The drilling of a few students with the objective only to win should not be a part of any educational program."

Bedell Honored

EARL L. BEDELL, director of vocational education in Detroit, was honored for his outstanding work in his field with a citation presented by the Mu Sigma Pi fraternity of Wayne University, Detroit, at a recent dinner. The affair, jointly sponsored by the fraternity and the Institute for Economic Education, was the opening dinner of "Careers Unlimited," an exhibition showing job opportunities in Metropolitan Detroit.

Need Skills Today

A SERIES of 10 reports on the development of the nation's highly-skilled work force, recently released by U.S. Secretary of Labor James P. Mitchell and Veterans Administrator Harvey V. Higley, emphasizes that the days of the American worker who can step into a

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You know what it means to a boy when he feels he is doing *real* work with *real* tools. He has an added incentive to *work* and to *think*. He's off to a good start . . . enthusiastic . . . eager to learn. It's a pleasure to have him in your class.

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Convention Calendar

Georgia Vocational Association, Biltmore Hotel, Atlanta, June 7-8.

Pennsylvania Education Association, Department of Practical Arts and Vocational Education, Eagles Mere, June 19-21.

International Graphic Arts Education Association, Santa Barbara College, California, August 5-10.

Louisiana Vocational Association, Southwestern Louisiana Institute, Lafayette, August 6-10.

Texas Vocational Association, Gunter Hotel, San Antonio, August 9-11.

Four State Industrial-Arts Conference, Kansas State Teachers College, Pittsburg, October 12-13.

Minnesota Vocational Association, Minneapolis, October 25-26.

American Vocational Association, Kiel Auditorium, St. Louis, Missouri, December 4-7.

good job without skills and training are gone forever.

Prepared by the Labor Department's Bureau of Labor Statistics, the reports have been designed for VA's use in counseling veterans applying for training and for the vocational guidance of young people in schools.

Nine of the reports cover the educational requirements for employment in physics, chemistry, geology, geophysics, biological sciences, economics, sociology, actuarial science, and statistics. The tenth deals with the "Employment Outlook in Skilled Electrical and Electronic Occupations," pointing up the growing demand for skilled electrical and electronic workers, brought about by automation and other recent technological developments.

The pamphlets may be purchased from the U. S. Government Printing Office, Washington 25, D.C. The electronics pamphlet, VA Pamphlet 7-9, sells for 40 cents. All others are 15 cents.

Visiting Educators

TWENTY trade-school teachers and supervisors from the Philippines are taking a six-weeks seminar on teacher-training at Stout State College this spring. An additional participant is from India.

The visiting educators not only are observing an American college in action and seeing how industrial education is taught at the college level, but in addition are taking six special courses on industrial education.

State Fairs

THE North Carolina Industrial-Arts Association held its fifth annual state fair at Proximity Junior High School, Greensboro, on May 11 and 12, the first two-day affair attempted in North Carolina. Twelve men from Kentucky, South Carolina, Virginia, Tennessee, and North Carolina judged the projects.

R. Lee Hornbake, University of Maryland, and Dewey Barich, director of educational affairs, Ford Motor Company, spoke at meetings held in conjunction with the fair.

Another project fair was held on May 12 in Stoughton, Mass., High School, sponsored by the Massachusetts Industrial Education Society. The fair also was the occasion for the spring convention of the Society, with more than 200 industrial-arts teachers attending.

Pennsylvania Meeting

THE annual Pennsylvania vocational and practical arts convention, to be held held June 19-21 in Eagles Mere, will have as its theme "A Forward Look at Vocational and Practical Arts Education." This will be the first convention since the merging of the Pennsylvania Vocational Association with the Department of Vocational and Practical Arts Education of the Pennsylvania State Education Association.

Topics to be considered in section meetings of this 30th annual convention will include "Techniques in Using and Staging Television Programs," "Trade and Industrial-Arts Education in Ohio," "Meeting the Challenge of the Typical Learner," and "Evaluating General Work-Experience Programs in Pennsylvania."

Combined Meeting

M. RAY KARNES, chairman of the department of industrial education, University of Illinois, discussed "Long-Range Planning for the Improvement of Industrial-Arts Education Programs" at a recent combined meeting of the Central Kentucky Industrial-Arts Education Association and the Industrial-Arts Club of Eastern Kentucky State College, Richmond, at the college campus. The meeting was also attended by representatives of the Kentucky State Department of Education and faculty members of the University of Kentucky and the Lafayette Vocational School, Lexington.

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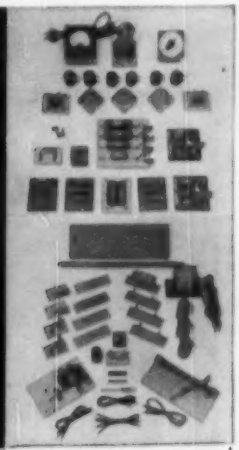

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Model 53 is the comprehensive, common-sense way to practical electronic knowledge, yet its cost is remarkably low. The complete kit as shown above—*nothing else to buy*—costs only $193.75. *Write for illustrated folder.*

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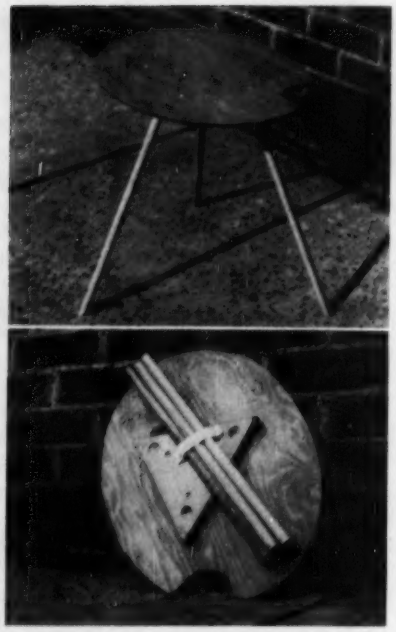
Portable Coffee Table

By Howard R. Schramm

Shadyside, Ohio, High School

SIMPLICITY as well as usefulness are incorporated in this portable coffee table. Easily stored, it can be used in the home, on picnics or outings, and for many other purposes. Beginning students will experience little difficulty in constructing the project, although it does involve a number of manipulative processes. Little material is required and scrap may be utilized.

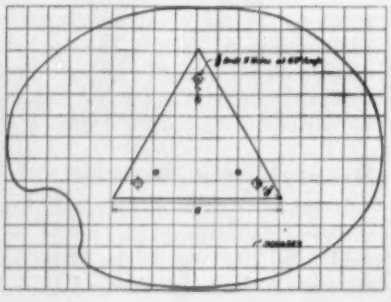
By enlarging, the palette design may be used for the top. However, various shapes such as a rectangle, circle, or ellipse may be used. The top is cut from ¼" plywood, ¼" plywood veneer, or stock surfaced to ¼" thickness. The palette design requires stock 13" by 18".



The legs of this table can be taken out of their sockets so that the table can be easily stored.

The following procedure may be followed in constructing the table:

1. Lay out selected design on material; cut; file and sand edges; and sand top.
2. Lay out equilateral triangle, with a base of 8", on ¾" stock; cut; plane and sand edges.
3. Locate centers of the three ⅝" holes on the equilateral triangle and drill at an angle of 60°.
4. Drill holes for 1" No. 8 F. H. B. wood screws and countersink.
5. Fasten the equilateral triangle to the top using screws and glue.
6. Cut three legs using ⅝" dowel 17" long. Cut one end of each dowel at an angle of 60°. The square end may be notched to a depth of 1".
7. Finish.
8. Fasten elastic to equilateral triangle piece to hold legs. ★



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Diamond Dust

Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.

Sloppy Joe

SEVERAL decades ago, in a small town somewhere, there was a young fellow who operated a hole-in-the-wall restaurant which was patronized by the young bloods who were eagerly searching for atmosphere when they had enough dough to treat their current heart-throb.

This young merchant had red hair and a ready smile. He had wit also, which he used to entertain his paying customers, as well as to discourage the panhandlers.

For some obscure reason he had adopted a name for his beanery which he seemed to feel described his place of business as he viewed it. The illuminated sign, which roosted in a prominent spot above his door, announced to those interested that this was "Sloppy Joe's Place." And, to the villagers, if one had failed to visit the joint "he hadn't been nowhere," and he "hadn't seen nuttin'."

If one wondered about the sign, he had only to pay one visit to the place to convince himself of its appropriateness. The main items on the bill-of-fare were hamburgers and hot-dogs, and, since the storage space was at a minimum, they were strewn around in little piles in full view of the customers. This might be considered an advantage since one could get a close-up picture of what he was about to receive. However, it had certain disadvantages in warm weather when the flies took possession.

Joe was a nice guy personally, but when one took a gander at his apron he became convinced that he did not subscribe to the linen-supply service which provided the local merchants with a weekly supply of clean linen. It may be that we err in this, but we are convinced that he had not changed his uniform during the past year. And the greasy cloth he used to mop the counter had not seen soap and water for longer than that.

These conditions, coupled with the cluttered-up shelves behind the counter, presented a picture for the customer which only those with chilled-iron constitutions could stand. And so, as we have said, the joint became a rendezvous for the young in spirit and strong in stomach.

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But we have "Sloppy Joe's" in some of our school shops too. Have you met the teacher who appears in class sporting a three-day growth of beard on his face. It may be that he is trying to demonstrate that he is a he-man, but he could hardly be called a thing of beauty. And the apron he wears is just as unsightly. We may accept his word for it that he wears a white apron, but now that it has an accumulation of glue or grease, or both, it is just as offensive and as unsanitary as Joe's.

He is proud of his toolroom, but when one steps inside he gets the impression that someone had stirred it up with a stick. And the shop itself is just as untidy. The benches are all out of alignment, they are dirty, and they are loaded with junk. The scrap is strewn around in great abandon, and the storage space is far from being a model of neatness.

While these conditions may be considered undesirable, what is more important is that he is sloppy in the language he uses in the shop. Not only so but he neglects to cooperate with the teacher of English by permitting his pupils to use sloppy language in class. He forgets that industrial arts is a medium through which pupils are to be taught. Not merely tool manipulation, or materials and processes, but also English, mathematics, good citizenship, cooperation, and neatness.

And the work done by the pupils is just as sloppy as the teacher and the shop. The whole environment tends to encourage sloppiness on the part of the pupils. Any kind of a job is good enough to satisfy the teacher. The pupils are encouraged to use their initiative and whatever the results are, they are considered to be acceptable. We have no desire to minimize the value of initiative, but all of the ideas conceived by ingenious youngsters might not meet the approval of a skilled craftsman. For this reason guidance must go along with the opportunity to use initiative. The absence of this guidance can result only in sloppy workmanship.

It would be difficult to find a teacher who errs in all of the situations mentioned here, but to err even in one of them is bad. Let us therefore examine ourselves lest someone classify us with "Sloppy Joe." ★

*strictly personal

CLIFFORD G. DOBSON will succeed CLAUDE E. NIHART as chairman of the department of industrial arts at Los Angeles State College, Calif., when Mr. Nihart retires in September.

E. E. ERICSON, professor of industrial arts, Santa Barbara College, University of California, is retiring this June.

WILLIAM J. REGAN, principal of Fosdick Masten and Boys' Vocational High Schools, Buffalo, N.Y., died recently.

EDWARD E. ERICKSON, Grand Forks, has been appointed North Dakota State Director of Vocational Education.

RICHARD S. NELSON, formerly supervisor of trade and industrial education for the California State Department of Education, has been appointed program specialist in T & I education for the U. S. Office of Education.

FRED C. FINSTERBACH, formerly director of training for Walker-Turner Corp., is now operating a specialized professional consulting service for architects, school boards, and school superintendents at Berkeley Heights, N.J.

HERBERT SNOW is now supervisor of industrial education at Kalamazoo, Mich. ★

CONTENTS

Principles of Good Shop Planning
Planning the New School Shop
Pertinent Planning Pointers
Planning for Industrial Education
Improving Shop Layouts for the Industrial-Arts Program
Planning the Vocational School
Safety Factors in Shop Planning
Selected References for School Shop Planning
Plan for Safety in Purchasing
Principles of Purchasing
Requisition Hints
General Shops:
- New General Shop Ideas
- Planning the General Shop
- Modern General Shop Plans
- Equipping the General Shop

Auto Shop:
- New Automotive Shops
- Planning the Auto Shop
- Equipping the Auto Shop

Drafting:
- New Drafting Rooms
- Planning the Drafting Room
- Equipping the Drafting Room

Electricity and Radio:
- New Electrical, Radio, and TV Shops
- Planning the Electricity and Radio Shop
- Equipping the Electricity Shop
- Equipping the Radio Shop

Graphic Arts:
- New Graphic Arts Shops
- Planning the Graphic Arts Shop
- Equipping the Graphic Arts Shop

Machine Shop:
- New Machine Shops
- Planning the Machine Shop
- Equipping the Machine Shop

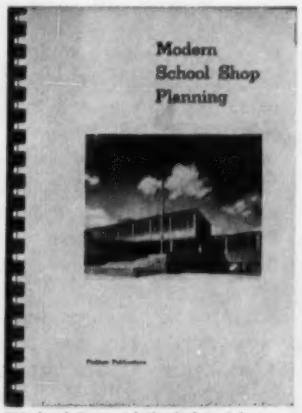
Metalworking Shops:
- New Metalworking Shops
- Planning the Metalworking and Welding Shops
- Equipping the Metalworking Shop
- Space Requirements for Machinery

Woodworking Shops:
- New Woodworking Shops
- Planning the Woodworking Shop
- Equipping the Woodworking Shop
- Space Requirements for Woodworking Machines

State Legal Provisions Affecting Shop Design

Modern School Shop Planning

The only book on the market today which gives you complete up-to-date information on planning for all types of school shops. Contains 37 diagrams and charts and 102 photographs, including pictures of well planned new shops recently built throughout the country. Here is a book that answers all the perplexing questions on planning, laying-out, and equipping the school shop, small or large. Contains definite, practical suggestions, not only for overall planning, but also for individual shops such as General Shops . . . Auto Shops . . . Drafting Rooms . . . Electrical, Radio & TV Shops . . . Graphic Arts Shops . . . Machine Shops . . . Metalworking Shops . . . Woodworking Shops.



This book is especially designed for you:
If you are in a school system where a new school is to be built.
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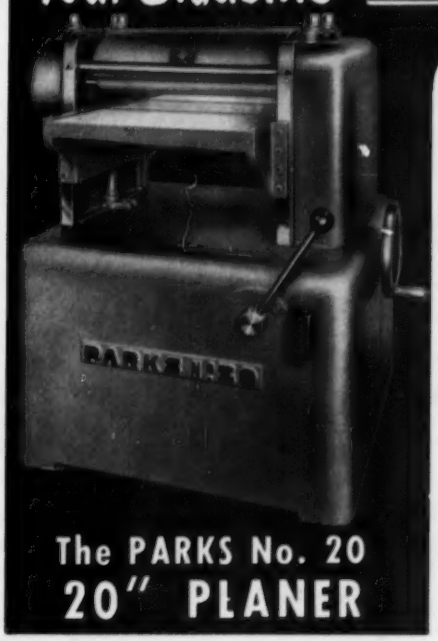

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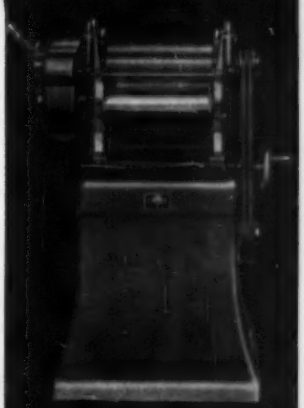

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On the Level

If warped boards or uneven desks cause drawing boards to slip, try this kink. Buy ½" white rubber-tack bumpers and put two on the back of each board. By watching where you put the bumpers you can take care of the warped boards so that drawing boards will be stationary.—*Warren H. Atwood, Sturges Junior High School, San Bernardino, Calif.*

Here's a Quickie

To fill up short periods which we sometimes have due to an assembly, movie, or other school activity, I use this project.

I keep some jeweler's findings in stock as well as some Canadian coins or inexpensive old coins. In these shortened periods I find that I can give a quick demonstration of sweat soldering or buffing and make either a pair of cuff links or a tie bar. The kids go for this idea and want to make their own jewelry which quite often leads to some original designs and stimulates them to try some creative work. Most of them can complete a tie bar and link set in 10 to 15 minutes.—*J. D. Hooper, West Junior High School, Akron, Ohio.*

Preserve the Projects

The good ideas and projects found in industrial-arts magazines present a constant storage problem. Time is wasted if you keep the whole magazine and thumb through a complete issue to find what you want. If the articles are clipped and filed in a manila folder and the students handle them often, they don't last long.

We find this method of filing articles is a good one. Cut out the article and insert it in a plastic transparent sheet protector and then put it in a three-ring notebook. It will last indefinitely or until it is replaced by a newer project. This method also makes it possible to classify articles in different categories in labeled notebooks. All ideas and projects concerning metalwork are classified in notebooks marked beginning metalwork, machine shop, etc. Woodwork department notebooks are classified under beginning woodwork, wood turning, and advanced woodwork.—*Louis R. Derby and Ashton R. Wilson, Washington High School, Sioux Falls, S.D.*

Smoother Sanding

Glue a new, unused cellulose sponge to a block of wood. Fasten sandpaper around the block. You now have a sandpaper block that is a dandy. It's even better than one with a felt face.—*Paul C. Hoopes, A. Clark High School, Roselle, N.J.*

No. 580 Orbital Sander $44.95

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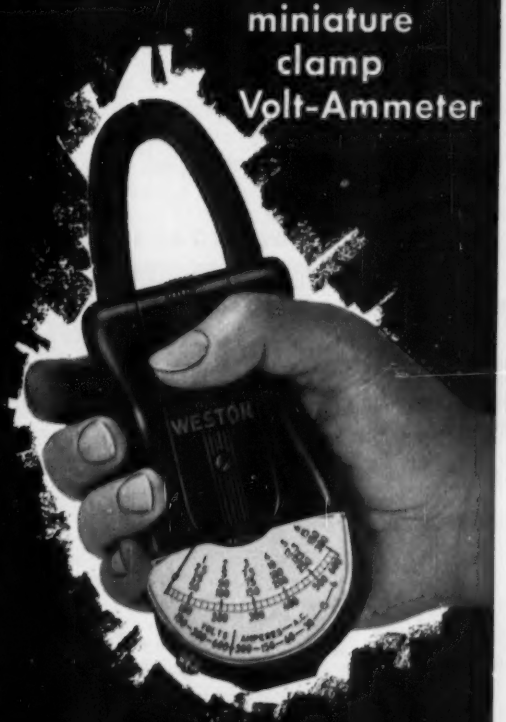

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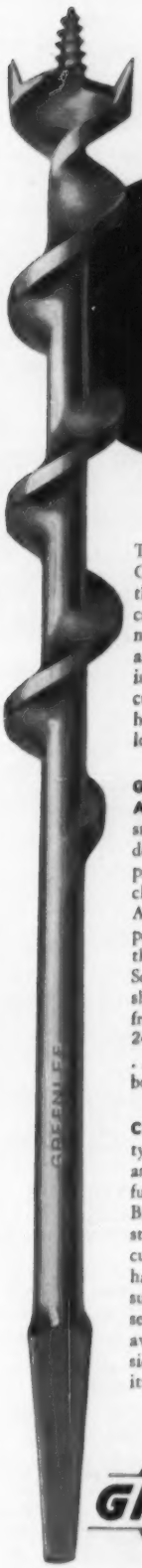

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A for Effort

In leathercraft classes we accumulate a large number of scrap pieces of tooling leather, too small to be used for projects, and yet too good to throw away. The past few years I have eased my conscience by using them in beginning leather classes as practice material.

I give each beginning student a piece of onion paper and a 2" x 2" square of tooling leather. He cuts the onion paper to the size of the leather, then he centers a 1½" square on the paper. His initial is then traced in the center of the square. The tracing paper is transferred to the leather with instructions on how to properly dampen leather for the tooling process. He then receives instruction in tracing, outline tooling, flat modeling, and stippling. If work is unsatisfactory, he starts over again. He is usually finished in one class period.

By using this method, the student begins his first project with confidence and ends on a note of reasonable success. Seldom does a student have to pay for another piece of leather because of unsatisfactory work. I feel better about it, too, because I don't have to throw away all my scraps.—*Leonard Wenz, Skinner Junior High School, Denver, Colo.*

Dowel Pin Dispenser

Dowel pins can be dispensed in the school shop in a specially-made container resembling a toothpick dispenser in your local restaurant.

Build one bin for each size pin and load up for business. If you have difficulty with certain immature boys using the dowel pins for study-hall ammunition, a lock can be fitted on the bin and the supply clerk can dispense the amount needed, recording the amount on his supply clip-board. — *Don Kinnaman, Junior High School, Rocky River, Ohio.*

Turn as You Work

For several years I have been trying to construct a cheap turntable for our paint room. I wanted one that could be elevated and turned at the same time. This year I successfully made one from an old barber-chair base.

These chairs can be bought at a very reasonable price from barber-supply houses. The chair is removed and a plywood top measuring about 3′ in diameter is bolted to the base. The handle has to be cut off and a new handle welded on so the chair can be elevated.

To prevent the plywood top from becoming thick with paint and having to be cleaned after every painting I made a band of bailing steel to fit around the edge of the table. It can be tightened with a thumb screw. Wrapping paper is then used to cover the table and the band holds it in place.—*Roy D. Herold, South Dakota State College, Brookings.*

Summertime Work Saver

When preparing tools and machines for the summer vacation period I find a coating of paste wax is far superior to oil. The wax gives better protection, there is no mess while applying it and no grease to clean off when readying the shop for fall use.—*Byron Davidson, Carlisle School, Covington, Ky.*

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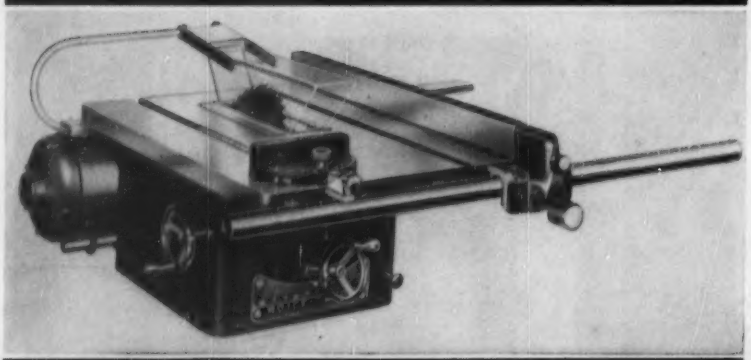

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IN THE *Morning Mail..*

[Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Michigan.

Dear Sirs:

I have received the April issue of SCHOOL SHOP magazine and believe it to be one of the most valuable issues I have ever received . . . It contains some of the most enlightening articles on industrial education ever to be printed. I hope that we in vocational education are all open minded enough to profit from these valuable bits of information. It is this sort of material which makes us cognizant of the ever-changing needs of industry and how we might cope with them.

George E. Wetzel,
Principal, Adult Vocational School,
Akron, Ohio.

Dear Sirs:

While recuperating from the M.I.E.S. convention Sunday, I took time to review the April issue of SCHOOL SHOP magazine with more than usual attention. In my estimation, this is one of your outstanding issues which should serve as a handbook for all teachers and as a textbook in our teacher-training institutions.

Although I confess that I did not read every article in total, I find them uniformly appropriate for their intended purpose and rather forward-looking in their point of view. I trust that they will also be passed on by the teachers to the administrators in their schools, as not much can be accomplished in the way of change without the support of this group.

H. J. VanWestrienen,
State Director of Vocational Education,
Lansing, Michigan.

Dear Sirs:

. . . In the February issue of "School Shop Talk," you refer to "an outmoded requirement," and perhaps there are states interpreting the "of less than college grade" in the same manner as your writer. In this state we have interpreted "of less than college grade" to mean courses which do not carry regular college credit. Much of the instruction included in the more technical occupations is equivalent to, or exceeds in difficulty, that contained in engineering courses on the undergraduate level.

I was somewhat distressed to learn that perhaps there are those in vocational education who actually place such a rigid interpretation on "of less than college grade." In the area along the Gulf Coast, we have a large concentration of chemical plants employing many technical draftsmen, laboratory technicians, electronics technicians, and the like. With the help of advisory committees from the industry, we determine course content needed to prepare for the jobs without regard to the level, and since no college credit is given to students taking these courses, it is our feeling that it meets the requirement of "less than college grade." It has always been my feeling that this phrase referred to a matter of intent rather than course content.

If a student is working toward a degree, which usually means heavy emphasis on theoretical training, then it should not be classified as vocational insofar as the Smith-Hughes and George-Barden Acts are concerned.

I believe that any sound vocational education program does precisely what is asked for in this article.

James S. Gupton,
Director, Vocational Education,
Houston, Texas.

Dear Sirs:

After reading the "From Washington" column in SCHOOL SHOP of January 1956, I would like to point out that the National Manpower Report Committee of Five has probably the same false notion concerning skilled training that many people in industry and education have. I am quite sure that if those people, whether they are members from industry or from education, were asked the question as to whether industry favored the training of skilled workers in a vocational and technical high school, they would answer in the affirmative provided that the term skilled workers was defined as a person employed as an electrician, millwright, carpenter, machinist, practical nurse, or beautician.

I have been at meetings where similar statements have been made, but when you pin the people down as to the type of worker, then they agree that they would prefer to have a worker with vocational school training, if he or she is in a real skilled category. We could do our country a serious disservice if this fact was not recognized. Perhaps someone who has time should study very carefully the manpower publications and clarify such ideas.

I certainly enjoy SCHOOL SHOP and feel that you are making a marvelous contribution to educational thinking in the realm of practical arts and industrial education.

Albert E. Jochen,
Assistant Commissioner of Education,
New Jersey Department of Education,
Vocational Division, Trenton.

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Project Design

What the industrial designers are doing (one of a series)

DUAL-POSITION CHAIR

Designers: EDGAR BARTOLUCCI and JACK WALDHEIM
Manufacturer: RALPH ELLIOTT CO.
LOS ANGELES, CALIF.

ALTHOUGH it has been several years since this "Barwa Chair" first made its appearance on the market, it deserves recognition in this series of articles because it is an ingenious solution to the old problem of relaxation.

It was during the time that the designer Jack Waldheim was a student at the Institute of Design in Chicago that it occurred to him that a chair might be designed to rest on two different planes. This would eliminate the problem of mechanical devices found in other adjustable chairs such as the famous Morris chair originated by William Morris in the latter part of the 19th century. Then too, most, if not all, of the older adjustable chairs, like the Morris chair, allowed movement of the back only; the seat remained in the same position. This increased the tendency for the person to slip down when the back was lowered.

In Waldheim's original design made out of wood, the angle between the back and the seat remained the same just as it does in the final version of aluminum tubing and cloth shown above. The chair is carefully balanced and tips back when the sitter shifts his weight slightly. This position provides greater relaxation by distributing the weight of the body over a larger area.

And the chair is not as difficult to get into as it might appear to be. The sitter approaches from the side, sits in the proper place and then swings his legs over the front portion. This movement should put the back in position as demonstrated by the girl knitting. With a gentle shift of the center of gravity, the sitter finds himself in the second position and also finds it difficult to stay awake. It is just the thing for the tired teacher, although his wife might eventually take the hacksaw to it.

—Robert A. Tinkham, Assistant Professor of Industrial Education, University of Illinois, Urbana. ★

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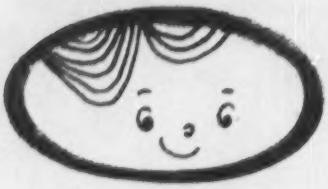
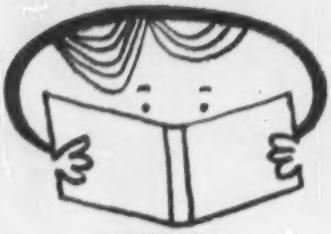


IT'S FUN!



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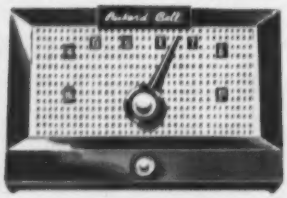

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instructional Resources

Books

Technical Drafting Details. 2nd Ed. Luzadder and Hornung. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1956. Pp. viii + 343. $3.75.

Here is an up-to-date presentation of the basic fundamentals of drafting which follows the latest practice in the profession, all of the material included being in agreement with modern ASA and ASE standards.

Some attention is given to the use of instruments, and to the solution of problems in geometry. In addition there are chapters on drawing different types of views, pictorial drawing, piping drawing, sheetmetal drafting, as well as in map drafting, structural drafting, and architectural drafting.

The material is arranged in a sequential order, and both the text and the illustrations are such that students may proceed with a minimum of aid from the teacher.

Two new sets of problems, prepared by Bollee and Luzadder for this edition, are now available for use with the text. These may be secured from the publisher under the title of *Problems in Drafting Fundamentals.*

Warren J. Luzadder is professor of Engineering Graphics, Purdue University. William J. Hornung is director of National Technical Institute.

Basic Synchros and Servo-Mechanisms. Van Valkenburgh, Nooger, and Neville, Inc. New York: John F. Rider Publisher, Inc., 1955. Vol. I. Pp. vi + 137. $2.75. Vol. II. Pp. vi + 119. $2.75.

These books were designed for, and are currently used by, the Navy as texts in their specialty schools. They are planned as extension courses to basic electricity and basic electronics.

The clarity of the text and the wealth of illustration tend to simplify what is usually considered to be an obscure subject. And, while the books were prepared for use by the Navy, they will serve to acquaint industrial people with the basic facts concerning automation.

In releasing this material for public use the Navy hopes to make a contribution to the education of the men and women who are now called on to maintain and develop the know-how that has made American industry what it is today.

Do-It-Yourself with Aluminum. Birdsall. New York: McGraw-Hill Book Company, Inc., 1955. Pp. viii + 136. $3.95.

This is a simple but helpful guide in which there are included working drawings, shop kinks, and short cuts for fabricating aluminum into over 100 useful and attractive projects.

Each article is presented in pictorial drawings, on which the important dimensions are given. In addition, complete working directions are included, which simplify the task of the operator.

Shop teachers interested in metal work will find the book to be a stimulating agent when their pupils are considering what to make. Home craftsmen and hobbyists too will find many attractive items with which to beautify their homes.

Automotive Mechanics. Third edition. Crouse. New York: McGraw-Hill Book Co., Inc., 1956. Pp. x+726. $5.20.

This is the third edition of a text which appeared originally in 1946. This edition contains a complete revision of the preceding ones, and also includes helpful material on all the newer devices found on the modern automobile.

Contents cover the full basic curriculum established by an authoritative committee composed of representatives from the area of vocational education and the automotive industry.

The book is well illustrated and it shows the modern methods of testing the various parts of a car as well as how to remedy any defects found in them.

The author, William H. Crouse, has written a number of books and magazine articles dealing with automechanics.

How to Finish Attics and Basements. Eisinger. New York: Arco Publishing Co., 1956. Pp. 143. $2.00.

Information contained in this book will be of interest to home owners who are considering the problem of expanding their living space by remodeling their basements or attics.

Complete details are given covering the procedure followed in each of three basements and seven attics. The illustrations and drawings included provide the reader with valuable suggestions in regard to the economical use of the space in similar projects.,

Larry Eisinger is editor-in-chief of the Arco Publishing Company.

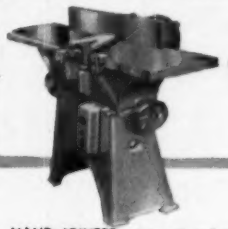
Tools in Your Life. Adler. New York: John Day Co., 1956. Pp. 128. $2.95.

This book presents, in an interesting manner, the story of technological development, from the Stone Age to the present. It should serve as related material for anyone who is interested in the history of modern industrial equipment.

Closed-Circuit and Industrial TV. Noll. New York: The Macmillan Co., 1956. Pp. x+230. $4.95.

The purpose of this book is to present information about closed-circuit TV systems, and to suggest ways in which these systems can serve modern industrial needs.

In the text, consideration is given to such



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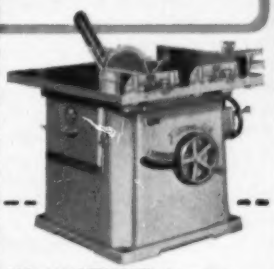

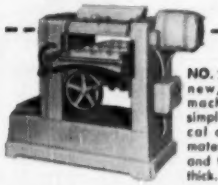

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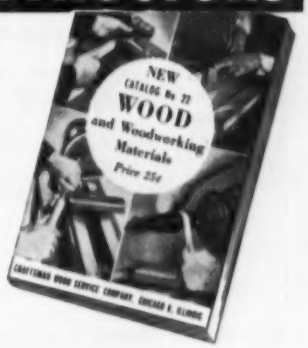

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topics as the use of the TV camera in industry, the basic system of picture transmission, camera tubes and circuits, amplifier systems, and commercial cameras and their construction. The book should be a valuable aid as a reference in technical schools or colleges.

Auto Radio Service Data Manual. Indianapolis: Howard W. Sams & Co., Inc., 1956. Pp. 134. $3.50.

This manual contains all the information needed by the mechanic when he is called on to service one of the many types of radios installed in the modern automobile.

Wiring diagrams are provided for each type, and a complete list of the parts required in each is given. Adjacent to each list is a photograph of the arrangement of the parts included, with appropriate numbers indicating the exact location of each part.

The serviceman will find the book a necessary part of his repair kit, and teachers in this field will find it an excellent reference book to have in their shop libraries.

Auto-Mechanics (Course 2, Revised) Tenth edition. Kuns. Milwaukee: Bruce Publishing Co., 1956. Pp. vi+276. $1.25.

This book is one of a group of six, each one dealing with a different phase of the automechanics trade. This one is concerned with cooling, lubrication, and fuel systems.

The author covers the care and maintenance of these systems, and provides enough mechanical theory for the student to understand the operation of the different parts.

Synchros Self-Synchronous Devices and Electrical Servo-Mechanisms. Crow. Vincennes, Ind.: The Scientific Book Publishing Co., 1955. Pp. xii + 222. $4.20.

One of the primary objectives of this book is to provide in one volume a discussion of all the basic selfsynchronous electrical mechanisms. It was designed as an aid in teaching in the armed forces and in technical schools and colleges, as well as to provide information for engineers and servicemen who wish to broaden their acquaintance with these devices and with their application in modern society.

Pamphlets:

How to Select, Use, and Care for Bits is a well-illustrated, informative booklet issued by the Irwin Auger Bit Company. Copies are available for class distribution from the company, Wilmington, Ohio.

Concrete Construction Around the Home, No. 20; and Landscaping Your Home at Low Cost, No. 19 are two do-it-yourself booklets issued by Popular Mechanics. Both offer many ideas and step-by-step procedure for the amateur in each field. Price is 25c each and they are available from Popular Mechanics Press, 200 E. Ontario St., Chicago 11, Ill.

Lumber from Forest to You is a 32-page booklet explaining the importance of the lumber industry in American economy. It traces the growth of lumber manufacturing in the United States from the early 1600's to its present-day status. Photographs illustrate what happens to a log from the time it is cut in the forest to its final phase of manufacture. Available from the National Lumber Manufacturers Association, 1319 18th St., N.W., Washington 6, D. C. Single copies are free; additional copies are 25c each.

Teaching Materials for Automotive Service Occupations is a collection of listings of books, pamphlets, charts, and teaching aids available on this subject. It was developed by the Minnesota State Automotive Committee under the supervision of Royalston Jennings of the Minneapolis Vocational School. Price is $1 and the booklets may be obtained from D. H. Chamberlin, Area Vocational School, St. Cloud, Minnesota.

Public Vocational Education Programs presents characteristics of programs under provisions of the federal vocational education acts. Price is 15c and copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.

You and Research is a brochure pointing out the necessary place for research in vocational education and was prepared by the Committee on Research and Publications of the AVA. Available from American Vocational Association, Inc., 1010 Vermont Ave., N.W., Washington 5, D. C.

Residential Wiring Handbook is a guide to electrical planning for new and modernized homes. It covers electrical symbols, definitions, and general requirements as well as special requirements. Single copies are 25c, quantity prices on application from the Industry Committee on Interior Wiring Design, Room 2650, 420 Lexington Ave., New York 17, N. Y.

A Chart of Occupational Titles and Related High School Subjects is a booklet which tells, in chart form, what courses a student must take in high school to attain his vocational goal. The booklet is $1.50 and may be ordered from Research Publishing Company, Inc., Boston, Mass.

Garlinghouse Ranch and Suburban Homes is a full color, illustrated booklet of homes and floor plans for supplementary instructional material in school shops. Send 10c to cover postage to the L. F. Garlinghouse Co., Inc., 820 Quincy St., Topeka, Kan.

Follow-Up Study of Former Apprentices is a sample survey of persons who discontinued apprenticeship programs during 1951 and 1952 and the reasons given. Available free from the U. S. Department of Labor, Bureau of Apprenticeship, Washington 25, D. C.

Safety Instruction in Industrial-Arts Education is a guide for safety instruction and a means of evaluation for the instruction. Price is 60c. The booklet may be obtained from California State Department of Education, Roy E. Simpson, Superintendent of Public Instruction, Sacramento.

The Relation of Guidance and Concomitant Attitudes to Specialized Trade and Industrial School Training in Kansas City is a summary report of a dissertation study by the same title. Available from the Department of Industrial Education, College of Education, University of Missouri, Columbia.

Heathkits PROVIDE "LEARN-BY-DOING" EXPERIENCE IN THE CLASSROOM AND SHOP

Heathkit BROADCAST BAND RECEIVER KIT
Covers 550 to 1600 kc and features miniature tubes, 3½" PM speaker, and built-in antenna. Cabinet available.
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Ship. Wt. 10 lbs. (Less Cabinet)

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Features 7 DC ranges, 7 AC (RMS and peak-to-peak) ranges, and 7 ohmmeter ranges. 4½" 200 ua meter—11 megohm input impedance—1% resistors—etched-metal circuit board—attractive styling.
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Heathkit ETCHED CIRCUIT OSCILLOSCOPE KIT
3" oscilloscope using etched metal circuit boards. Light and compact—easily portable. Features extended sweep range and broad amplifier response. Push-pull vertical and horizontal amplifiers. A tremendous dollar value.
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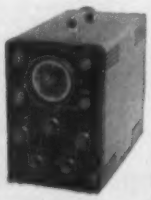

Heathkit manuals provide step-by-step assembly instructions, pictorial diagrams, schematic diagrams, information on color codes, on soldering, and regarding tools. High quality parts supplied in every kit.

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Audio-Visuals:

Play It Safe is a sound, color film which teaches bicycle safety to youngsters. The film is part of a complete safety program which includes a manual, safety posters, and steps for instigating the program. Available from Bicycle Safety Program, Johnson & Johnson, New Brunswick, N. J.

An Introduction to the Automotive Electrical System is an 18-minute, sound, slide film in color containing approximately 80 frames. It is narrated on two sides of a 16-inch record and is suitable for driver-training classes and elementary automotive mechanics classes. It may be purchased or borrowed from Technical Editor, Technical Literature Section, Delco-Remy Division, General Motors Corporation, Anderson, Ind.

Putting a Job on a Platen Press is designed for use in graphic arts, printing, and industrial-arts classes on junior-high, senior-high, and college levels. Running time is 10 minutes on this black and white film and price is $50. It may be purchased from Bailey Films, Inc., Hollywood 28, Calif.

Films Relating to Printing and Graphic Arts is a listing of films on this subject. Price is 25c and the catalog may be obtained from Michigan Industrial Education Society, Inc., 4029 Allen Ct., Bay City, Mich.

Local 100, running time 32 minutes, relates the beginning of the organization of a trade union. It also illustrates collective bargaining and how it was carried on to obtain a contract providing job security and improved conditions. Price is $145 and the film is available from Text-Film Department, McGraw-Hill Book Company, 330 W. 42nd St., New York 36, N. Y.

Production Band Machining is a 16mm, sound film which teaches techniques and capabilities never before credited to this machine tool. Free loan from DoALL Company, Des Plaines, Ill.

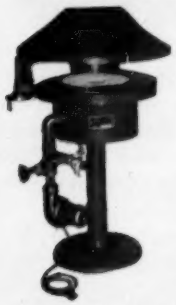
Industrial Arts: Wood Finishing explains and demonstrates the major materials and procedures used in finishing wood and is designed for high-school woodworking shop classes. Price is $62.50 and the film is 1¼ reels in length. For additional information write Young America Films, Inc., 18 E. 41st St., New York City 17.

The World Makes an Automobile is a wall-chart map showing where the various materials which make up today's car are located in the world. It may be obtained from Public Relations Department, Automobile Manufacturers Assn., 320 New Center Bldg., Detroit 2, Mich.

Design illustrates how design is used in creating a work of art. Three basic shapes, the circle, the triangle, and the square, are employed. In color, the film is 10 minutes long and sells for $100. Available from Bailey Films, Inc., 6509 De Longpre Ave., Hollywood 28, Calif.

How Basic Tools Created Civilization (33" x 46") is a chart which was prepared as a supplement to the Wilkie Foundation's traveling exhibit "Civilization through Tools". This 8-color chart is printed on heavy paper, suitable for mounting. It illustrates the development of present-day tools from prehistoric times. Cost is 50c and the chart is available from the DoAll Company, Educational Material Division, 254 North Laurel Ave., Des Plaines, Ill.

SPEEDY-FORGE



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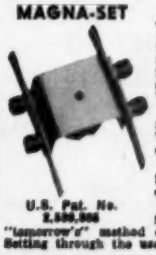

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10 THOMAS STREET PROVIDENCE, R.I.

Helpful for the transferring student, this record shows

What the Boy Can Do

By V. E. Broadbent

Santa Clara, California, Union High School

UNLESS all our schools come under one central system, extremely unlikely in our democracy, industrial-arts courses will never be uniform in content and quality. Size of the school, equipment available in the shop, and the types of students are some of the many elements involved.

Several years ago, under the direction of the county supervisor of industrial arts, a group of Santa Clara County shop teachers sat down to make at least a skeleton outline of what to expect in each of the major fields of shop subjects as applied to our particular area. Specific objectives in skill and related knowledge were listed with no attempt to specify particular projects. We found this of material aid but, even in one county, shops varied too widely in equipment and teaching personnel to achieve anything near uniformity.

But what did come out of our conferences was a system to take care of a student's transfer to another school.

Previously, when a student came into our classes from another school we did not dare to assume that he had had training in any of the shop processes, especially in the operation of the more dangerous machinery. Now, my group in woodwork lists all the processes and techniques that a student might have had training in. Then, if a student quits to go to another school, the shop teacher checks on the mimeographed sheet the items the boy has passed and this record accompanies the transcript of grades to the new school.

The receiving teacher then has at least written evidence that the new boy has had training on specific machines. After a quick test to see if the boy's training concurs with the teacher's ideas of safe operation, he can allow the student to go on without starting all over again. This list has been such a success since its adoption that groups in the other major shops in my school are likewise compiling check-off lists. ★

RECORD OF WOODWORK TRAINING

Name of School_____ Date_____

Name of Teacher_____ Year in Woodwork_____

This certifies that_____has had instruction in the following operations that are checked:

- ☐ 1. Make a working drawing
- ☐ 2. Make a stock bill
- ☐ 3. Figure board feet
- ☐ 4. Make lumber bill
- ☐ 5. Use of hand crosscut and ripsaws
- ☐ 6. Square up lumber by hand
- ☐ 7. Sharpen a plane iron and/or chisel
- ☐ 8. Sharpen a knife
- ☐ 9. Bore holes with brace and bit
- ☐ 10. Sharpen an auger bit
- ☐ 11. Use a chisel
- ☐ 12. Use steel dividers
- ☐ 13. Use a hammer
- ☐ 14. Cut curves by hand
- ☐ 15. Smooth edges by hand
- ☐ 16. Use a rabbet and router plane
- ☐ 17. Set in screws
- ☐ 18. Make a dado joint by hand
- ☐ 19. Make a rabbet joint by hand
- ☐ 20. Make a cross-lap joint by hand
- ☐ 21. Make a mortise tenon joint by hand
- ☐ 22. Make a miter joint by hand
- ☐ 23. Make a dowel joint by hand
- ☐ 24. Glue and clamp
- ☐ 25. Joint boards by hand for gluing
- ☐ 26. Do simple non-spring upholstery
- ☐ 27. Sharpen a scraper
- ☐ 28. Put on butt hinges
- ☐ 29. Install locks and catches
- ☐ 30. Fasten table tops
- ☐ 31. Do simple chip carving
- ☐ 32. Prepare a project for a finish
- ☐ 33. Use sandpaper properly
- ☐ 34. Apply oil stain
- ☐ 35. Apply water stain
- ☐ 36. Apply spirit stain
- ☐ 37. Apply shellac
- ☐ 38. Apply woodfiller
- ☐ 39. Apply varnish
- ☐ 40. Apply lacquer
- ☐ 41. Apply paint and enamel
- ☐ 42. Apply wax
- ☐ 43. Operate jointer
- ☐ 44. Operate a planer
- ☐ 45. Use the circular ripsaw
- ☐ 46. Use the circular crosscut saw
- ☐ 47. Use the dado head
- ☐ 48. Cut tenons by machinery
- ☐ 49. Operate the bandsaw
- ☐ 50. Operate the hollow chisel mortiser
- ☐ 51. Operate the belt sander
- ☐ 52. Operate the jigsaw
- ☐ 53. Operate the disk sander
- ☐ 54. Taper legs by machinery
- ☐ 55. Square up stock by machinery
- ☐ 56. Construct drawers
- ☐ 57. Use of spray gun

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Berger Drafting Kits are at the "head of the class" with instructors everywhere. And with students, too. With the Berger Drafting Kit, students are fully-equipped with every tool they need . . . every day. Sessions get under way promptly without students begging the loan of a protractor, a triangle, a scale. It's today's indispensable teaching aid.

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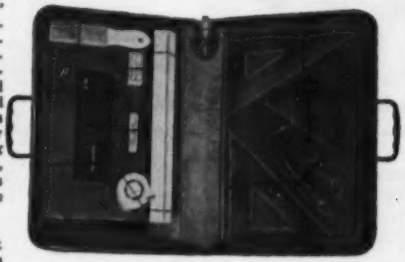

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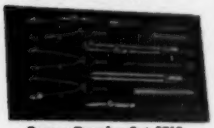

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Complete — high-grade scholastic set; in velvet lined case. Price including complete kit—$11.00.

T-710A With interchangeable nickel silver master bow—$9.40.

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Engineer's Scale	Pencil Pointer
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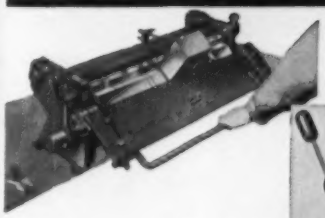
CHICAGO Hand Operated UNIVERSAL BOX and PAN BRAKES



Bench Model BB 2 with all the features of the larger machines; Capacity 24", 16 Gauge

Floor Model, Capacity 3 to 10 feet and up to 12 gauge

Within its size and capacity, a CHICAGO Box and Pan Brake offers all the features needed for the practically limitless variety of bending operations in sheet metal work. Besides the regular and reverse bends, boxes and pans can be formed from one piece of metal. Also, with special bars readily interchangeable, radius bends and tubular shapes can be made.

It pays to teach sheet metal bending with CHICAGO Brakes as these machines are universally used in industrial and general sheet metal shops.

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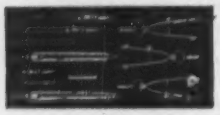

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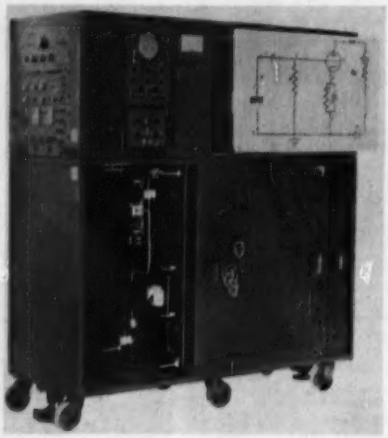
1548 West Bruce St. Milwaukee 46, Wis.

news from Industry

(Circle the numbers on the card in this issue to secure the items listed.)

Visual Trainer Shows Advanced Electronic Circuits

The Federal Pacific Electric Company announces a new type of electronic trainer that is suited for classroom instruction.



The trainer, designed for the presentation of basic and advanced electronics, provides the advantages of a dynamic training aid with visual demonstration of actual currents, voltages, and waveforms, the firm says.

Visual indication of circuit characteristics and values is presented on the screen of a cathode-ray oscilloscope and other meters used with basic "plug-in" circuit diagrams, according to the manufacturer. Demonstration panels are provided for instruction in basic electronic principles and circuits including: resonance; RC circuits; diode; triode and pentode tube characteristics; rectification and filtering; amplification; bias methods; limiters; clamping; multi-vibrators; shock-excited oscillators; and sweep generators.

For additional information write to the Federal Pacific Electric Co., 50 Paris St., Newark 1, N.J., mentioning SCHOOL SHOP; or *circle no. J-1 on the business-reply card.*

Lufkin Depth Gage Has Graduated Base

A new micrometer depth gage with a graduated base is announced by the Lufkin Rule Company. The gage measures depth of holes, slots, projections, etc., with micrometer accuracy, the manufacturer states.

The base is graduated on one side permitting the taking of measurements at a specified distance from the edge of the work, according to the maker. The company's data states that the gage is graduated in 50ths (.020) and extends 2.4" on both sides of zero located in the center of the base.

The measuring device is available in ranges of 3" and 6" with a lock nut or a lock nut and a ratchet.

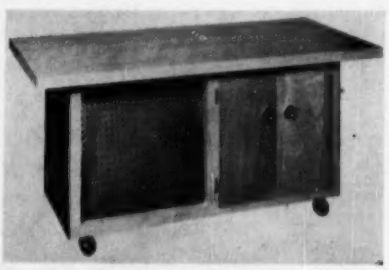
A micrometer with a deep-throat frame that measures sheets and plates has also been announced by the company. The firm says that it is designed so that it also permits measurements 3¼" from the edge of the work. The frame is heavy-duty ribbed with a black, non-slip finish. The head is of chrome-clad non-glare finish with black-filled graduations and figures.

The gage is available with a range to 1" by .0001, with either a plain or a ratchet cap.

Additional information may be had by writing to the Lufkin Rule Company, Saginaw, Mich., mentioning SCHOOL SHOP; or *circle no. J-2 on the business-reply card.*

Elementary Work Bench Eases Crowded Conditions

Brodhead-Garrett announces its EP-6 Portable Elementary Bench that it believes will aid in easing crowded conditions that exist in many classrooms.



The firm says this about its product: it is portable; it is made of hard maple and finished with several coats of lacquer; the top is 28" x 60" x 1¾" of edge-grain hard maple; the base section has two sloping tool panels, two end tool panels where tool panels are completely visible at all times, and one double-door storage area; the whole unit is mounted on casters.

Additional information is available by writing to Brodhead-Garrett Co., 4560 E. 71 St., Cleveland, Ohio mentioning SCHOOL SHOP; or *circle no. J-3 on the business-reply card.*

Eagle Celebrates Centennial

Started in a small office on John Street, New York City, in 1856, the Eagle Pencil Company this year is celebrating its 100th anniversary. The company was established by the great grandfather of the present president, Alfred Berol, who learned the art of pencil making in his father's factory in Bavaria.

According to company officials, Eagle Pencil Company is now the world's largest producer of quality wood-cased lead pencils. General offices are still located at 703 E. 13th St., N. Y., the site of the factory after its expansion in 1877. Present buildings cover 500,000 feet of manufacturing space.

NEW 1956

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EDUCATIONAL LUMBER DIVISION
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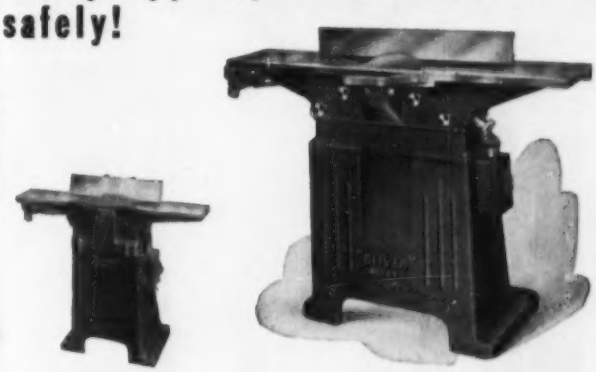
OLIVER Jointers are the heavy type...produce fine work safely!



Oliver 6-inch Jointer makes perfect glue joints. Has 39-inch polished tables. Three-knife cutterhead runs in self-aligning ball bearings. Fence adjustable to 45° across table. Table lowers up to 1/2" for rabbeting. Ask for Bulletin 133.

Oliver 8-inch Jointer is ideal for all classes of small and medium work. Sturdy one-piece frame carries tables, cutterhead, fan-cooled motor, fence and guard. Its 60-inch polished tables lower up to 1/2" for rabbeting. Fence, adjustable across table, can be tilted up to 45°. Three-knife safety cylinder. Write for Bulletin No. 144.

Oliver Jointers also made in 12" to 30" sizes

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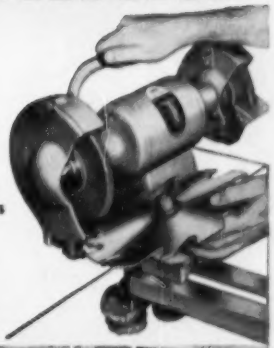

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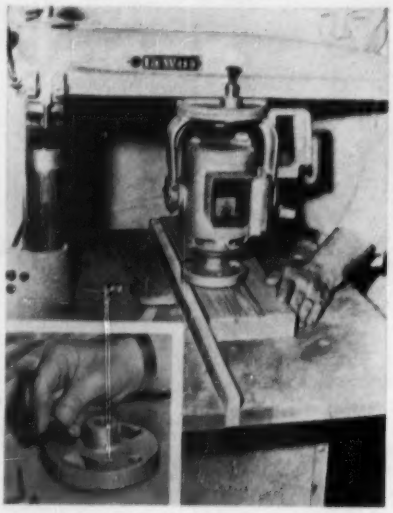
Rotary Planer Introduced

A rotary planer for use with their radial arm multi-purpose "Power Shop" machines has been introduced by DeWalt, Inc.



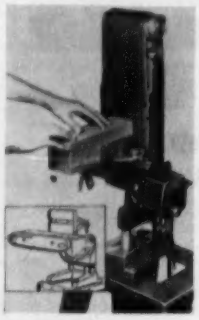
According to the firm, it screws on directly to the motor shaft, converting the "Power Shop" from a basic circular saw to a surfacing machine.

To install the planer, the arbor is completely cleared of all other equipment (arbor nut, collars, and saw blade or other cutting tool), the firm says. The threaded planer head is then screwed on the arbor, and the motor of the machine is placed in vertical position. With the two removable high-speed steel knives set to the proper depth of cut, warped, cupped, or otherwise irregular lumber can then be fed into the machine, emerging in smooth, usable condition, the company's instructions state.

More information can be had by writing to DeWalt, Inc., Lancaster, Pa., mentioning SCHOOL SHOP; or *circle no. J-4 on the business-reply card.*

Magna Power Tool Announces Belt Sander

The Magna Power Tool Corporation announces a new 6" belt sander that can be used either in vertical position or horizontal for surfacing or edging large stock.



Included in the new features are automatic belt tension with a single control knob for belt changing; one tracking nut, insuring proper tracking and preventing over-tensioning on the belt; auxiliary spindle on the drive drum for mounting disc or drum sanders, polishing units, etc.; and a dust-collection scoop with an outlet to fit standard vacuum cleaner hose, the company states.

For more information write to the Magna Power Tool Corp., Menlo Park, Calif., mentioning SCHOOL SHOP; or *circle no. J-5 on the business-reply card.*

New Rotary Table Uses Rotary Feed

The Chicago Tool and Engineering Company announces a new rotary table which incorporates rotary feed and two cross slides in addition to a tilting feature which enables an operator to set the table at any angle from 0° to 90° in a vertical plane.

The Palmgren No. 84 Tilting Rotary Indexing Milling Table has an 8" diameter which is graduated 360°, the firm states. The rotary indexing dial is calibrated in three-minute intervals, and the cross-feed dials are graduated in thousandths.

The versatility of the table, the firm claims, enables it to be used as an angle plate for laying out work.

They have also announced another item, their No. 23B angle vise.

Included in the firm's specification sheet about the vise is the following data: the 3" jaws have a 3" opening and 1¾" depth; it can be used with or without the 360° graduated swivel base; it can be set at any angle from 0° to 90° in a vertical plane; it can be used as an ordinary machine vise in a horizontal position.

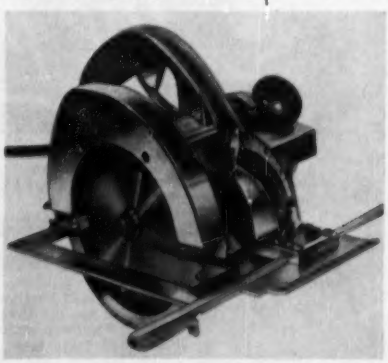
The firm states that the vise is made of grey-iron castings and steel and that the adjusting screw has a fine-thread pitch.

For more information write to the Chicago Tool and Engineering Co., 8383 South Chicago Ave., Chicago 17, Ill., mentioning SCHOOL SHOP; or *circle No. J-6 on the business-reply card.*

Portable Electric Saw Announced by Thor Power Tool

A portable 7¼" electric saw, driven by a universal motor that delivers 1¾ hp, has been added to the SpeedTool line of Thor Power Tool Company.

The firm says the new saw features an automatic telescoping guard riding on anti-friction



ball bearings. Included, too, in its features are wing-nut adjustments for depth of cut and for angle cuts to 45°, plus a heavy duty protractor for positive and accurate angle cuts, a guide-notch to assure accuracy of cuts, and a rip guide.

The company states that the gears are of helical-alloy steel and sealed in grease as are all bearings. The saw is housed in aluminum alloy die castings and weighs 14½ pounds. It operates on either ac or dc and develops 5400 rpm at full no-load speed.

For more information write to the Thor Power Tool Co., Aurora, Ill., mentioning

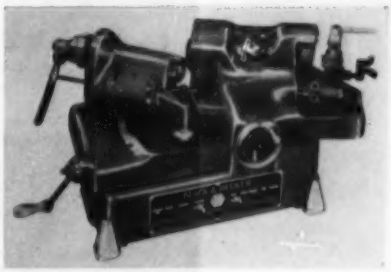
SCHOOL SHOP; *or circle no. J-7 on the business-reply card.*

Valve Refacer Chuck Grips Stem with Air

A new valve refacer with an air chuck that instantly grips the valve stem in the workhead has been announced by the Black & Decker Manufacturing Company.

With the air chuck, the company states, the valve refacer—the No. 626—is precision built, simple to operate and adjust. It is capable of performing a precision valve refacing job.

The machine handles all valve heads up to a 4" capacity and valve stems from 9/32" to 11/16". A special collet is available having a valve-stem range from 7/32" to 13/32". Valve faces can be traverse-ground at any angle from 0° to 90°.



For more information write The Black & Decker Mfg. Co., Towson 4, Md., mentioning SCHOOL SHOP; *or circle no. J-8 on the business-reply card.*

New Literature:

The EICO 1956 Catalog, recently published, describes 54 models of professional electronic test instruments in both kit and factory-wired form. The 12-page catalog describes the features, applications, and specifications for each model. For a copy write EICO, 84 Withers St., Brooklyn 11, N.Y., mentioning SCHOOL SHOP; or *circle no. J-9 on the business-reply card.*

Nu-Rail Slip-On Fittings is the title of a four-page brochure recently published by The Hollaender Manufacturing Company which describes the applications and specifications of this new method of fitting pipe without cutting threads and without welding. For a copy write the manufacturer, 3841 Spring Grove Ave., Cincinnati 23, Ohio, mentioning SCHOOL SHOP; or *circle no. J-10 on the business-reply card.*

Hazel Pearson Handicrafts Catalog No. 8 is a new 30-page booklet listing equipment in copper craft, aluminum craft, felt craft, cork craft, wood craft, and designs for hobbyists. The catalog also lists "how-to-do-it" sound films, booklets, and books. For a copy of the catalog write Hazel Pearson Handicrafts, Box 193, Temple City, Calif., mentioning SCHOOL SHOP; or *circle no. J-11 on the business-reply card.*

Wetzler Clamps is the title of a 20-page, pocket-size booklet which details the company's full range of clamps and handscrews. It includes diagrams, specifications, and photographs. For a copy, write Wetzler Sales Department, 43-15 Eleventh St., Long Island City 1, N. Y., mentioning SCHOOL SHOP; or *circle no J-12 on the business-reply card.*

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Index to Volume XV

All articles and projects in Volume XV (1955-56) of SCHOOL SHOP may be found in the index, listed alphabetically by both author and subject (e.g., woodworking, machine shop, etc.). Following the name of the author and the title of each article are the month of issue and the page on which the article appears.

A

Adams, Aaron. Jigsaw Jones. Sept., 43; Nov., 36; Jan., 22; Feb., 42; Mar., 16; May, 44; June, 32.
Adams, Russell, and Gerald W. Shipman. Successful Safety Program. Jan., 14.
Akeson, Harold O. Colonial Scroll Mirror. Jan., 10.
Albers, William Russell. Parents Need to Be Sold, Too! Sept., 14.
Amadeo, Dominic. Basketball Cart. Oct., 60.
Ambrose, Walter L. Our Age of Plastics. Mar., 12.
———These Versatile Plastics. Nov., 13.
AMERICAN VOCATIONAL ASSOCIATION—
AVA Convention Report. Feb., 28.
Full Schedule Ahead for AVA Visitors. Dec., 30.
L. H. Dennis, Former AVA Secretary, Succumbs at 74. Oct., 26.
Several Innovations Planned for 1955 AVA Convention. Nov., 32.
The Democratic Way. (Editorial) Nov., 2.
Anlt, Andrew K. Start a Foundry. Oct., 12.
AUTO MECHANICS—
The Automotive Industry Looks at Industrial Education. Stanley S. Reo. April, 6.
The "Putt-Putt" Era. Warren F. Haas. Dec., 18.
Avery, John M. Extension Flash Unit. Feb., 16.

B

Barich, Dewey F. Industry Looks at General-Shop Education. April, 22.
Barto, Ash. Wrought-Iron Lamp. Oct., 18.
Bateson, Robert E. Dividing a Circle. Sept., 40.
Beeton, Douglas C. Making Rubber Stamps. Sept., 16.
Blattenberger, Raymond. The Graphic-Arts Industry Looks at Industrial Education. April, 29.
Bolt, Ralph J. Staying Young. Jan., 16.
BOOKS—(See Instructional Resources)
New Books in Industrial Education. April, 94.
Brandt, Michael J., and Prust, Z. A. The Making of a Silver Ring. Oct., 17.
Broadbent, V. E. What the Boy Can Do. June, 38.
Brown, Walter C. Teaching General Drafting. May, 10.
Burke, Victor. Casablanca's Industrial School. Oct., 11.
Burns, Clyde E. Think a Problem Through. Dec., 12.
Busch, Walter P. A Puzzle for Beginning Draftsmen. Nov., 10.

C

Carpenter, Joseph E. Composite High-Speed Center. Nov., 34.
Chapman, Lloyd G. Classes Simulate Actual Working Practices. Jan., 30.
Chick, Anne H. The Army's Crafts Program. June, 12.
Connolly, Joseph. The Use of a Critical Score to Determine Individual Abilities. Sept., 13.
Cook, Herbert E. The Electrical Industry Looks at Industrial Education. April, 18.
Cook, James. Adaptable Shelving. May, 24.
Coon, Eugene B. Picnic Table. Mar., 11.
Coumont, A. The Radio and Electronics Industry Looks at Industrial Education. April, 44.
CRAFTS—
Double-Bevel Tool Holder. Bernard R. Josif. May, 37.
Filtered Buffing Machine. Henry Semran. Feb., 12.
Plastic Jackets. Leslie W. Hawkins. Nov., 16.
The Army's Crafts Program. Anne H. Chick. June, 12.
The Making of a Silver Ring. Michael J. Brandt and Z. A. Prust. Oct., 17.
Crie, Don. A New Twist in Wrought Iron. Nov., 12.

D

Daley, Fay, and Robert F. Jones. Spring Threading-Tool Holder. Sept., 10.
DESIGN—(See Project Design)
Dewey, D. E. A Valuable Lesson in Human Relations. Jan., 8.
DIAMOND DUST. Thomas Diamond.
Fall-Out and the School Shop. Oct., 46.
First Things First. May, 27.
How Firm a Foundation? Sept., 24.
Less Talk, More Action. Nov., 26.
No Pine Ultra. Dec., 22.
Sloppy Joe. June, 25.
Step Lightly. Jan., 26.
The Loyal Order. April, 68.
The Pat on the Back. Feb., 38.
When the Livin' Is Easy. Mar., 36.
Diamond, Thomas. An Outmoded Requirement. (Editorial) Feb., 2.
———How Industry Can Look at Industrial Education. (Editorial) April, 2.
———If the Schools Don't, Labor Will. (Editorial) Dec., 2.
———Out Our Neck We Stick. (Editorial) May, 2.
Dick, Arthur A. Safe Work Habits. Dec., 11.
Dickson, James S. A Contest That Makes Learning Fun. Sept., 16.
Directory of Federal and State Officials. April, 112.
Dean, Cortland C. Night Photography. Feb., 14.
DRAFTING—
A Puzzle for Beginning Draftsmen. Walter P. Busch. Nov., 10.
Enlarged Scale Aids Beginners. Arthur Elliott. Oct., 24.
Industrial Drafting Looks at Industrial Education. Arthur H. Rau. April, 10.
Teaching General Drafting. Walter C. Brown. May, 10.
The Changing Picture in Industrial Drafting. A. J. Philby. April, 16.
The Use of a Critical Score to Determine Individual Abilities. Joseph Connolly. Sept., 13.

E

ELECTRICITY—(See also Radio)
Darkroom Timer. John Emmel and John Morgan. Oct., 16.
Dynamotor Teaching Aid. E. T. Kuhn and William R. Limburg. Sept., 8.
Electrical Relay. Morris K. Kunins. Nov., 18.
Magnetic Coil. Harry L. Miller. Mar., 15.
The Electrical Industry Looks at Industrial Education. Herbert E. Cook. April, 18.
Visual Interval Timer. Rupert N. Evans. Dec., 17.
Elliott, Arthur. Enlarged Scale Aids Beginners. Oct., 24.
Emmel, John. Cold-Light Enlarger. Mar., 14.
——— and John Morgan. Darkroom Timer. Oct., 16.
Evans, Rupert N. Supersonic Whistle. Sept., 15.
———Visual Interval Timer. Dec., 17.

F

Fanelli, Michael. Graphic-Arts Time Card. Oct., 62.
Finsterbach, Fred. "Postparation"—A Method Suggested for That First Project. June, 10.
FOUNDRY—
Start a Foundry. Andrew K. Anlt. Oct., 12.
Francis, George H. Pocket-Size Radio. Feb., 19.
From Washington. Sept., 68; Oct., 80; Nov., 52; Dec., 48; Jan., 46; Feb., 56; Mar., 48; April, 128; May, 48; June, 48.

G

Garry, Samuel. Lick That Evaluation Demon. Mar., 18.
GENERAL SHOP—
A Contest That Makes Learning Fun. James S. Dickson. Sept., 16.
Aluminum Fireplace Set. Kenneth G. Wise. May, 13.
Dividing a Circle. Robert E. Bateson. Sept., 40.
Enlarged Scale Aids Beginners. Arthur Elliott. Oct., 24.
Industry Looks at General-Shop Education. Dewey F. Barich. April, 22.
Making Rubber Stamps. Douglas C. Beeton. Sept., 16.
Setting Up a Production Shop. Marshall Schmitt. Jan., 6.
The "Putt-Putt" Era. Warren F. Haas. Dec., 18.
Try a Sequence Board. Francis J. Kafka. Oct., 14.
Walnut Dominoe Set. R. K. Wimberley. Oct., 15.
Gerbracht, C. J. Industrial Arts for General Education. Jan., 12.
Geyer, I. Blaine. Tool-Storage Cabinet. June, 9.
GRAPHIC ARTS—
Graphic-Arts Time Card. Michael Fanelli. Oct., 62.
Lick That Evaluation Demon. Samuel Garry. Mar., 18.
Making Rubber Stamps. Douglas C. Beeton. Sept., 16.
Printing Rolled Ribbon. Kenneth L. Ross. Nov., 32.
Status Is Important to Kids. Al Haber. Feb., 31.
The Graphic-Arts Industry Looks at Industrial Education. Raymond Blattenberger. April, 29.
Try a Sequence Board. Francis J. Kafka. Oct., 14.
Grayshon, Alfred. Adjustable Gear Puller. Mar., 32.
———Expansion Mandrel. Feb., 24.
Guthrie, William. Scriber. June, 16.
Gwinn, Robert. Projects Are Airborne. Jan., 18.

H

Haas, Warren F. The "Putt-Putt" Era. Dec., 18.
Haber, Al. Status Is Important to Kids. Feb., 31.
Hackett, Donald F. Portable Projection Stand. Sept., 42.
Hassenau, J. James. First Aid Cabinet for the Shop. May, 14.
———Model Builders Plane Set. Jan., 13.
Hawkins, Leslie V. Plastic Jackets. Nov., 16.
Hawley, William B. Do Students Get Their Due from Day-Trade Classes? (Editorial) June, 2.
Hippaka, T. A. Above and Beyond the Call of Earning a Living. Sept., 7.
Hoffman, Frank M., and Ruehl, Philip W. Include Radio in Your Shop. Dec., 10.
Hornbake, R. Lee. Time for Progress. June, 7.

I

INDUSTRIAL ARTS—
Art Merges with Industrial Arts. Harold Sutton. Feb., 18.
A Valuable Lesson in Human Relations. D. E. Dewey. Jan., 8.
Does Industrial Arts Have a Mission? Gordon O. Wilber. Feb., 11.
Industrial Arts for General Education. C. J. Gerbracht. Jan., 12.
Industrial Arts' Newest Obligation. E. L. Kurth. Nov., 7.
Industry Looks at General-Shop Education. Dewey F. Barich. April, 22.
Parents Need to Be Sold, Too! William Russell Albers. Sept., 14.
Planned Public-Relations Program. Rex Miller. June, 18.
"Postparation"—A Method Suggested for That First Project. Fred Finsterbach. June, 10.
Projects Are Airborne. Robert Gwinn. Jan., 18.
Report of AIAA Milwaukee Convention. June, 47.
Setting Up a Production Job. Marshall Schmitt. Jan., 7.
Staying Young. Ralph J. Bolt. Jan., 16.
The Army's Crafts Program. Anne H. Chick. June, 12.
The Use of a Critical Score to Determine Individual Abilities. Joseph Connolly. Sept., 13.
Think a Problem Through. Clyde E. Burns. Dec., 12.
Time for Progress. R. Lee Hornbake. June, 7.
Time Is of the Essence. William E. James. May, 7.
Try a Sequence Board. Francis J. Kafka. Oct., 14.
INDUSTRIAL EDUCATION—
Bolivia's Industrial-Education Program. Claire Jones. Dec., 9.
Bye-Bye Broomholder. (Editorial) Thomas Diamond. Mar., 2.
Directors of Training for Industry View Industrial Education. Charles V. Youmans. April, 8.
Industry Looks at Industrial Education. Fred Strickler. April, 6.
Panhandling Doesn't Pay. (Editorial) Mar., 2.
"Postparation"—A Method Suggested for That First Project. Fred Finsterbach. June, 10.
Research Pains. (Editorial) Jan., 2.
Instructional Resources. Sept., 46; Oct., 64; Nov., 38; Dec., 36; Jan., 34; Feb., 40; Mar., 34; April, 102; May, 34; June, 34.
In the Morning Mail. Oct., 46; Nov., 28; Dec., 31; Feb., 34; Mar., 22; May, 28; June, 31.

J

James, William E. Time Is of the Essence. May, 7.
Jirsa, Charles. The Secretary's Minutes. Sept., 20.
Johnson, Harold V. Drop-Leaf Table Lamp. Feb., 15.
Jones, Claire. Bolivia's Industrial-Education Program. Dec., 9.
Jones, Robert F., and Daley, Fay. Spring Threading-Tool Holder. Sept., 10.
Josif, Bernard R. Double-Bevel Tool Holder. May, 37.

K

Kafka, Francis J. Try a Sequence Board. Oct., 14.
Kelley, Harry J. One Woodworking Industry Looks at Industrial Education. April, 54.
KINKS—
Accurate Sandpaper Cutter. Donald J. Hendrick. Sept., 24.
A Different Slant. Hugh Lineback. Oct., 20.
A for Effort. Leonard Wenz. June, 30.
Air-Tight Sealing. Bob Geister. May, 18.
A Jog to Memories. B. J. Dennis. Sept., 24.
A Thorough Shellacking. David Davidson. Feb., 33.
Awls for Everybody. Don E. Coe. Oct., 22.
"Best of the Week." Robert M. Smith. Feb., 33.
Blocks Aid Selection. Walter P. Busch. Sept., 23.
By Remote Control. Robert S. Tupper. Nov., 22.
Chilling Does It. Louis Enos. Dec., 29.
Clamping Kinks. Don Kinnaman. Oct., 23.
Collar the Bottle. Stanley Clark. Oct., 22.
Color-Code the Keys. Carl H. Hubachek. April, 72.
Cooking Handles On. Louis J. Enos. Nov., 22.
Design Your Own. Ralph Johnson. Sept., 23.
Disc-Cutting Jig. Don Kinnaman. Nov., 23.
Display for Efficiency. Leonard W. Glisman. Sept. 22.
Double Duty for Fuses Boxes. Carl H. Hubachek. Dec., 28.
Dowel Pin Dispenser. Don Kinnaman. June, 30.
Easily-Made Staple Puller. E. R. Gaskill. Sept., 24.
Easy Pencil Pointer. Chester W. Korber. April, 72.
Easy Storage Rack. Don Kinnaman. Dec., 28.
Foil for Waste. Robert M. Woodbury. Sept., 23
For a Skin-Tight Top. Walter Schmid. Jan., 22.
Good Knife from Old Blade. W. F. Schaphorst. Sept., 23.
Good Lumber in Good Supply. Harold S. Preston. May, 22.
Handy Lifters. Edward Saks. April, 73.
Hang Them Up. Ira H. Johnson. Dec., 29.
Here's a Quickie. J. D. Hooper. June, 28.
High and Dry. Irvin Lathrop. May, 18.
Housekeeping Kinks. Ed Lancaster. April, 72.
In the Groove. Charles Green. Dec., 29.
Less Fall-Out. Louis Enos. April, 73.
Lumber Lesson. Robert S. Tupper. Jan., 23.
Magazine Display Rack. Robert S. Tupper. Nov., 22.
Neat Containers for Small Parts. H. J. Gerber. Jan., 23.
No-Tip Gadget. Leonard M. Mamm. April, 72.
On the Level. Warren H. Atwood. June, 28.
Oven Timer Times the Kiln. Robert J. Ullery. Feb., 33.
Read with a Razor. Vernon D. Wilson. Jan., 22.
Recondition Lathe Centers. John F. Stecyk. Mar., 24.
Rejuvenate the Worn Figures. Hugh Lineback. Sept., 24.
Rotary Principal Demonstrated. Paul Bradlaw. Mar., 24.
Pad for Perfection. E. N. Pearson. May, 18.
Patterns for Teaching. L. D. Jenks. May, 22.
Patterns Have Longer Life. Don F. Kinnaman. Sept., 22.
Patterns Help Beginners. Don F. Kinnaman. Jan., 22.
Picture the Piece. Fred Sherwyn. May, 21.
Plastic for Files. Don E. Coe. Feb., 32.
Plastic Jointer Guard. William D. Chatfield. Nov., 23.
Platform for the Short Ones. Gardner Sherman. Mar., 25.
Portable Tool Racks. Forest Lynn. Oct., 20.
Precut Tape for Economy. William O'Reilly. Feb., 32.
Preserve the Projects. Louis R. Derby and Ashton R. Wilson. June, 28.
Printer's Measure. R. W. Engelmeier. Feb., 33.
Salvage for Measurement. Nathan J. Gould. May, 21.
Save Steps When Sawing. Robert S. Tupper. Dec., 28.
Save With a Dispenser. Kenneth I. Beatson. Sept., 24.
Shoe Dye as a Substitute. N. J. Gould. April, 72.
Simple Leveling Device. W. F. Schaphorst. Dec., 28.
Smoother Sanding. Paul C. Hoopes. June, 28.
Spring It Before Their Eyes. Louis Enos. Mar., 24.
Strop for Sharpness. Charles M. Rice. May, 21.
Summertime Work Saver. Byron Davidson. June, 30.
Swing-Out Storage Place. Harry M. Sain. Sept., 24.
Tell by the Smell. Frank Kosma. Jan., 22.
The Line-Up. N. M. Pittman. April, 72.
Three Months of Safety. Ben Taubenfeld. Dec., 28.

Tightening Table Tops. Kenneth B. Bennett. Oct., 22.
To Anchor Drawing Benches. Frank J. Renner. Mar. 25.
To Enlarge Small Holes. Harry Mayo. Sept., 22.
To Save Pattern Books. Stan Schirmacher. Oct., 22.
Traffic Situation Eased. John H. Buekers. April, 73.
True or Flatten Them. Milton J. Miller. Jan., 23.
Turn as You Work. Roy D. Herold. June, 30.
TV Turntable. Leonard Maunu. Nov., 23.
Utilize Tobacco Tins. Don F. Kinnaman. May, 18.
Wax Does It. Richard E. Hart. Oct., 20.
Kinsler, George. A Compact Library. June, 20.
Knight, Conrad W. Making Their Own Visual Aids. Mar., 20.
Kuhn, E. T., and Limburg, William R. Dynamotor Teaching Aid. Sept., 8.
Kunino, Morris K. Electrical Relay. Nov., 18.
Kurth, E. L. Industrial Arts' Newest Obligation. Nov., 7.

L

Lappin, Alvin R. Spoon Rack. Dec., 13.
Limburg, William R., and Kuhn, E. T. Dynamotor Teaching Aid. Sept., 8.
Luchsinger, Leland B. VIC Blazes the Trail. Feb., 20.
Lynn, Forest. Demonstration Board. Sept., 38.
———Pegboard Radio Chassis. May, 26.

M

Machine Shop—
Administrative Aids. Michael Strotsky. Dec., 14.
Aluminum Paper Punch. Theodore E. Wiehe and Donald Maurer. Jan., 9.
Built a Planer. Lelon Traylor. Jan., 11.
Cold-Light Enlarger. John Emmel. Mar., 14.
Composite High-Speed Center. Joseph E. Carpenter. Nov., 34.
Expansion Mandrel. Alfred Grayshon. Feb., 24.
Fly-Tying Vise. Herbert W. Yankee. May, 15.
Scriber. William Guthrie. June, 16.
Spring Threading-Tool Holder. Robert F. Jones and Fay Daley. Sept., 10.
Supersonic Whistle. Rupert N. Evans. Sept., 15.
Tailstock Die Holder. Richard G. Wibom. May, 9.
The Machining Industry Looks at Industrial Education. Urwin Rowntree. April, 32.
Maurer, Donald, and Theodore F. Wiehe. Aluminum Paper Punch. Jan., 9.
McGovern, Don. Crossbow. Nov., 11.
Metalwork—
A New Twist in Wrought Iron. Don Crie. Nov., 12.
Aluminum Fireplace Set. Kenneth G. Wise. May, 13.
Filtered Buffing Machine. Henry Semran. Feb., 12.
Fly-Tying Vise. Herbert W. Yankee. May, 15.
Forged Tack Hammer. Amos G. Williams. Dec., 15.
Hot-Dish Stand. John D. Parr. Feb., 22.
Polishing and Buffing. Maurice Overholt. Dec., 16.
Spun Hurricane Lamps. Franklyn D. Wesley. June, 15.
Start a Foundry. Andrew K. Ault. Oct., 12.
The Sheetmetal Industry Looks at Industrial Education. Hugh B. Reid. April, 40.
Wrought-Iron Lamp. Ash Barto. Oct., 18.
Miller, Harry J. Magnetic Coil. Mar., 15.
Miller, Rex. Planned Public-Relations Program. June, 18.
Morgan, John, and John Emmel. Darkroom Timer. Oct., 16.

N

News. Sept., 28; Oct., 48; Nov., 24; Dec., 34; Jan., 27; Feb., 26; Mar., 29; April, 70; May, 30; June, 21.
News from Industry. Sept., 52; Oct., 70; Nov., 44; Dec., 40; Jan., 40; Feb., 44; Mar., 36; April, 121; May, 38; June, 40.

O

O'Neil, James. Sight-Saving Program. Mar., 8.
Oster, J. Albert. Faribault's First House. Sept., 50.
Overholt, Maurice. Polishing and Buffing. Dec., 16.

P

Parr, John D. Hot-Dish Stand. Feb., 22.
Philby, A. J. The Changing Picture in Industrial Drafting. April, 16.
Photography—
Cold-Light Enlarger. John Emmel. Mar., 14.
Darkroom Timer. John Emmel and John Morgan. Oct., 16.
Extension Flash Unit. John M. Avery. Feb., 16.
Night Photography. Cortland C. Dean. Feb., 14.
Pierce, Hugh F. "Just Teach 'Em Good Attitudes." (Editorial) Sept., 2.
Plastics—
Our Age of Plastics. Walter L. Ambrose. Mar., 12.
Plastic Jackets. Leslie V. Hawkins. Nov., 16.
These Versatile Plastics. Walter L. Ambrose. Nov., 13.
Project Design—
Chair and Small Desk. Feb., 30.
Coffee Table. Oct., 58.
Combination Seat. Mar., 22.
Desk Lamp. Jan., 17.
Dining Table and Chairs. May, 16.
Dual-Position Chair. June, 32.
Metal Chair. Dec., 35.
Straight Sectional and Wedge Table. April, 110.
Table Lamp. Sept., 43.
Public Relations—
Here Is a Way. Sept., 33; Oct., 44; Dec., 23; Jan., 17; Feb., 42; Mar., 28; April, 68.
Parents Need to Be Sold, Too! William Russell Albers. Sept., 14.
Prust, Z. A., and Michael J. Brandt. The Making of a Silver Ring. Oct., 17.

R

Radio and Electronics—(See also Electricity)
Demonstration Board. Forest Lynn. Sept., 38.
Include Radio in Your Shop. Philip W. Ruehl and Frank M. Hoffman. Dec., 10.
Pegboard Radio Chassis. Forest Lynn. May, 26.
Pocket-Size Radio. George H. Francis. Feb., 19.
The Radio and Electronics Industry Looks at Industrial Education. A. Coumont. April, 44.
Training the Electronic Technician. Harry R. Wilson. May, 12.
Visual Interval Timer. Rupert N. Evans. Dec., 17.
Rau, Arthur H. Industrial Drafting Looks at Industrial Education. April, 10.
Reid, Hugh B. The Sheetmetal Industry Looks at Industrial Education. April, 40.
Roe, Stanley S. The Automotive Industry Looks at Industrial Education. April, 8.
Ross, Kenneth L. Printing Rolled Ribbon. Nov., 32.
Rowntree, Urwin. The Machining Industry Looks at Industrial Education. April, 32.
Ruehl, Philip W., and Frank M. Hoffman. Include Radio in Your Shop. Dec., 10.

S

Safety—
First Aid Cabinet for the Shop. J. James Hasenau. May, 14.
Safe Work Habits. Arthur A. Dick. Dec., 11.
Shop Accidents. (Editorial) Oct., 2.
Sight-Saving Program. James E. O'Neil. Mar., 8.
Successful Safety Program. Gerald W. Shipman and Russell Adams. Jan., 14.
Teaching Safer Driving. A. C. Vasis, Jr. Oct., 52.
School Shop Talk. (Editorial) Sept., 2; Oct., 2; Nov., 2; Dec., 2; Jan., 2; Feb., 2; Mar., 2; April, 2; May, 2; June, 2.
Schmitt, Marshall. Setting Up a Production Job. Jan., 7.
Schramm, Howard R. Portable Coffee Table. June, 24.
Scoville, Sydney. Lazy Susan Tray. Sept., 12.
Semran, Henry. Filtered Buffing Machine. Feb., 12.
Shipman, Gerald W. and Russell Adams. Successful Safety Program. Jan., 14.
Shop Administration—
A Compact Library. George Kinsler. June, 20.
Administrative Aids. Michael Strosky. Dec., 14.
A Valuable Lesson in Human Relations. D. E. Dewey. Jan., 8.
Status Is Important to Kids. Al Haber. Feb., 31.
The Secretary's Minutes. Charles Jirm. Sept., 20.
Tool-Storage Cabinet. I. Blaine Geyer. June, 9.
What the Boy Can Do. V. E. Broadbent. June, 38.
Shop Teachers' Service. Oct., 27.
Snow, Welton A. The Construction Industry Looks at Industrial Education. April, 52.
Strickler, Fred. Industry Looks at Industrial Education. April, 6.
Strictly Personal. Sept., 36; Oct., 57; Nov., 29; Dec., 26; Jan., 32; Feb., 36; April, 68; June, 26.
Strosky, Michael. Administrative Aids. Dec., 14.
Suppliers Directory. April, 74.
Sutton, Harold. Art Merges with Industrial Arts. Feb., 18.

T

Traylor, Lelon. Built a Planer. Jan., 11.
Turnbull, J. S. How to Square Up a Board by Hand. June, 14.
———How to Square Up a Board by Machinery. Feb., 29.

V

Vasis, A. C., Jr. Teaching Safer Driving. Oct., 52.
Visual Aids—
Making Their Own Visual Aids. Conrad W. Knight. Mar., 20.
New Visual Aids in Industrial Education. April, 105.
Portable Projection Stand. Donald F. Hackett. Sept., 42.
Vocational Education—
Above and Beyond the Call of Earning a Living. T. A. Hippaka. Sept., 7.
An Obligation. (Editorial) Nov., 2.
An Outmoded Requirement. (Editorial) Thomas Diamond. Feb., 2.
Bolivia's Industrial-Education Program. Claire Jones. Dec., 9.
Casablanca's Industrial School. Victor Burke. Oct., 11.
Classes Simulate Actual Working Practices. Lloyd G. Chapman. Jan., 20.
Directors of Training for Industry View Industrial Education. Charles V. Youmans. April, 3.
Do Students Get Their Due from Day-Trade Classes? (Editorial) William B. Hawley. June, 2.
Faribault's First House. J. Albert Oster. Sept., 50.
From School to Career. Walter A. Tew, Jr. Sept., 32.
How Industry Can Look at Industrial Education. (Editorial) Thomas Diamond. April, 2.
Industrial Drafting Looks at Industrial Education. Arthur H. Rau. April, 10.
"Just Teach 'Em Good Attitudes." (Editorial) Hugh F. Pierce. Sept., 2.
L. H. Dennis, Former AVA Secretary, Succumbs at 74 (Obituary). Oct., 26.
One Woodworking Industry Looks at Industrial Education. Harry J. Kelley. April, 54.
The Automotive Industry Looks at Industrial Education. Stanley S. Roe. April, 8.
The Changing Picture in Industrial Drafting. A. J. Philby. April, 16.
The Construction Industry Looks at Industrial Education. Welton A. Snow. April, 52.
The Electrical Industry Looks at Industrial Education. Herbert E. Cook. April, 18.
The Graphic-Arts Industry Looks at Industrial Education. Raymond Blattenberger. April, 29.
The Machining Industry Looks at Industrial Education. Urwin Rowntree. April, 32.
The Radio and Electronics Industry Looks at Industrial Education. A. Coumont. April, 44.
The Sheetmetal Industry Looks at Industrial Education. Hugh B. Reid. April, 40.
Training the Electronic Technician. Harry R. Wilson. May, 12.
VIC Blazes the Trail. Leland B. Luchsinger. Feb., 20.

W

Wesley, Franklyn D. Spun Hurricane Lamps. June, 15.
Wibom, Richard G. Tailstock Die Holder. May, 9.
Wiehe, Theodore E., and Donald Maurer. Aluminum Paper Punch. Jan., 9.
Wilber, Gordon O. Does Industrial Arts Have a Mission? Feb., 11.
Williams, Amos G. Forged Tack Hammer. Dec., 15.
Wilson, Harry R. Training the Electronic Technician. May, 12.
Wimberley, R. K. Walnut Dominos Set. Oct., 15.
Wise, Kenneth G. Aluminum Fireplace Set. May, 13.
Woodwork—
A Compact Library. George Kinsler. June, 20.
A Contest That Makes Learning Fun. James S. Dickson. Sept., 18.
Adaptable Shelving. James Cook. May, 24.
Basketball Cart. Dominic Amadeo. Oct., 60.
Built a Planer. Lelon Traylor. Jan., 11.
Colonial Scroll Mirror. Harold O. Akeson. Jan., 10.
Crossbow. Don McGovern. Nov., 11.
Double-Bevel Tool Holder. Bernard B. Josif. May, 37.
Drop-Leaf Table Lamp. Harold V. Johnson. Feb., 15.
Faribault's First House. J. Albert Oster. Sept., 50.
First Aid Cabinet for the Shop. J. James Hasenau. May, 14.
How to Square Up a Board by Hand. J. S. Turnbull. June, 14.
How to Square Up a Board by Machinery. J. S. Turnbull. Feb., 29.
Lazy Susan Tray. Sydney Scoville. Sept., 12.
Model Builders Plane Set. J. James Hasenau. Jan., 13.
One Woodworking Industry Looks at Industrial Education. Harry J. Kelley. April, 54.
Picnic Table. Eugene B. Coon. Mar., 11.
Portable Coffee Table. Howard R. Schramm. June, 24.
Portable Projection Stand. Donald F. Hackett. Sept., 42.
Spoon Rack. Alvin R. Lappin. Dec., 13.
The Construction Industry Looks at Industrial Education. Welton A. Snow. April, 52.
Tool-Storage Cabinet. I. Blaine Geyer. June, 9.
Walnut Dominos Set. R. K. Wimberley. Oct., 15.

Y

Yankee, Herbert W. Fly-Tying Vise. May, 15.
Youmans, Charles V. Directors of Training for Industry View Industrial Education. April, 3.

Washington . . . *from page 48*

on training supervisors and "middle management."

The use of consultants is considered a promising innovation in the complex business of running a complex agency, such as the federal vocational education division. Assistant Commissioner James Pearson believes in it; and so does his boss, U. S. Commissioner of Education Brownell. The five experts named above will serve until about the end of June and then will return to their old jobs. But during the few weeks in Washington they "serve to bring a sharp point of view, new ideas, and fresh approaches to pressing problems in vocational education."

A new document for supervisory development is now in preparation in Washington.

It will be a product of Consultant Bowler (see item above) and a dozen leaders with whom, he, in turn, had consulted during a conference held on May 7 through 11. During this meeting, representatives from 13 states exchanged information on what's being done to train supervisors in industry and commerce. Out of this material, Mr. Bowler is expected to select a "little philosophy, and much on the techniques" of supervisory development. When the document is published, sometime in June or July, it will be the first such bulletin in more

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than a decade to come from the Office of Education.

Top management for vocational education in Washington has been strengthened by the appointment of Lane C. Ash as assistant director for program coordination.

Mr. Ash will help Dr. Pearson on problems of budget, analysis of programs, research, publication planning, and contacts with the public. Mr. Lane knows many occupations first hand, having worked as a machinist, mechanical draftsman, and supervisor of industrial workers. During World War II he was a staff member of the trade and industrial education branch in Washington.

The position to which Mr. Lane has been named had been held by Jim Pearson prior to *his* being appointed Assistant Commissioner for Vocational Education. With the veteran Ward Beard and the newly-named Lane Ash, Dr. Pearson now has a strong managerial team to serve the ever-increasing requests for service from states and local communities.

The new President's Committee on Education Beyond the High School may take up vocational-education problems.

Whether it will do so depends on Committee members themselves. Certainly, their mandate is broad enough to include this area of education. The Committee was named by President Eisenhower in response to demands from college executives that higher education, too, needs reexamining as was elementary and secondary education by the White House Conference. Significantly, the President asked his newly-named group to study all problems of educating boys and girls after their graduation from high school. The chairman of the Committee is Devereux C. Josephs, a New York businessman. But the presence of several public-school administrators gives rise to the conjecture that the Committee will consider the value of setting up thirteenth and fourteenth grades in public-school systems; of recommending the spread of area vocational schools; and of encouraging the growth of technical institutes under public-school administration. Among the 31 members are Vernon L. Nickell, Illinois State Superintendent of Public Instruction, and Kenneth E. Oberholtzer, Denver superintendent of public schools.

A Congressional subcommittee found four vocational schools allegedly owned by Communist sympathizers.

The four are a labor school in San Francisco; a radio and television school in Allentown, Pa.; a secondary voca-

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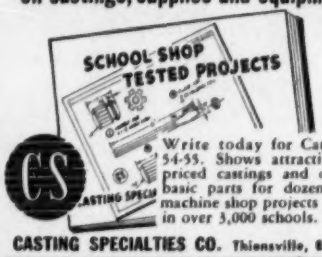

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tional, and an art and cartoonists school, both in New York City. The Senate Permanent Subcommittee on Investigations, headed by Sen. McClellan, looked into complaints that "many vocational trade schools are under Communist influence; found only the four mentioned above as worth investigating. Owners of the four schools denied they were Reds. Mr. McClellan's investigators found that these four schools had accepted some $3,000,000 in tuition fees from veterans since 1946. A complete report of the findings will be published soon and Senate subcommittee staff members admit that some newspapers may, irresponsibly, head their stories "Reds Infiltrate Vocational Schools." But a report to the people is needed, they say, in order to caution state educational approval agencies to be more careful in approving schools for veterans education in the future.

The American Vocational Association is preparing to celebrate 50 years of industrial and practical-arts education.

Climax of the observance will of course be at the St. Louis AVA convention, December 3 through 7. In the meantime, the AVA has asked an historically-minded educator to write a 128-page history of vocational education's growth. The first vocational organization was formed in New York City in 1906. But how many now know its name? And how many know which U. S. Secretary of Commerce was once president of the organized vocational educators? And who served as president of organized vocational educators five years in a row, longer than any one else in history? If you promise to read the many other interesting facts which will be ready for you in December, we'll give you the answer to the last two questions. It was William C. Redfield, who was Secretary of Commerce, and who also served as president of the National Society for the Promotion of Industrial Education (and there goes the answer to the first question above!) from 1911 through 1915 . . . ! ★

Report of American Industrial Arts Association Milwaukee Convention

Approximately 1000 industrial-arts teachers gathered at the Milwaukee Auditorium April 25-27 for the 18th annual convention of the American Industrial Arts Association. Following the excellent pattern established in earlier conventions, the meetings were arranged so that those in attendance could participate in small discussion groups following the general sessions, thus giving each person a chance to pursue further the topics under discussion.

Extensive educational and commercial exhibits attracted much attention as did a series of demonstrations put on by students in various teacher-training institutions on the concluding day.

Such topics as teaching methods, the housing of facilities, course content, and evaluation were covered in general sessions by experts in various fields, followed by smaller discussion sessions.

New president of the association is Roy A. Radtke, director of industrial arts in the Milwaukee, Wis., public schools. Kenneth Perry, Colorado State College of Education, Greeley, was elected vice-president and Kenneth Brown, State College for Teachers, Buffalo, N.Y., was re-elected executive secretary.

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from Washington

by Michael Paca

From the Washington news mills come these items of information, recorded impersonally, for the most part:

The federal school construction bill is getting nowhere.

Before the Easter recess, supporters of the Kelley bill (which asks for federal dollars to help build schools) were quite hopeful, and cheered themselves with the advice, "Wait till after Easter." Now that June is almost here, they are less hopeful. "But something has got to happen," they claim. Speaker Rayburn has indicated that he will do his best to get the Kelley bill out of the House Rules Committee for a possible vote on the House floor. He *may* succeed; and the bill *may* squeeze through the House. But the Senate shows no interest in the legislation. Some of the bill's supporters are already mapping new strategy for the next session of Congress—clearest indication that approval of this bill is not possible in 1956.

The final Report to the President made by the Committee for the White House Conference on Education gives strong endorsement to vocational education.

"Modern school systems," says the Report issued on April 6, "are asked to provide . . . vocational education tailored to the abilities of each pupil and to the needs of the community and nation." This goal, as well as many others, says the Report, has been hammered out at countless school board meetings. It is a legitimate goal, an answer to a genuine public demand.

Nearly all educators in Washington have hailed the Report as a solid piece of work, touched by flashes of brilliance, by sound reasoning, and by friendliness to public education. It urges the nation to double the outlay for education in ten years; asks for higher teacher salaries; for wider public participation in school affairs; and for a more generous flow of funds for schools from local, state, and federal governments. In the years ahead the Report may be best remembered for sentences like this: "It is primarily the schools which allow no man's failure to prevent the success of his son."

Vocational education reaches new all time highs in enrolment and expenditures.

The final figures for 1955, just now being summarized by the U. S. Office of Education, show that during that year some 3,438,000 persons were enrolled in all types of vocational courses. This total has never been approached in peacetime, and is a long way from the mere 165,000 enrolled in 1918. Expenditures during 1955 totalled $165,000,000, again a record. The federal government contributed only $30,350,000 to this amount. The states gave $57,591,000; local governments, the sum of $76,819,000.

It was a banner year for trade and industrial education. Extension training of employed workers went up; foremanship training increased appreciably; new types of courses (servicing of color TV sets, to give one example) made their appearance. In all, some 871,000 persons were learning industrial and trade skills.

The use of consultants by the federal vocational education division is invigorating the work of the entire staff in Washington.

Five "outside" experts have been at work for the past several weeks. They are W. F. Stewart, formerly from Ohio State University, who is advising on agricultural education for out-of-school young farmers; Adrian Trimpe, Western Michigan College, who is concerned with training programs for outside selling; Katherine Reed, Oregon State College, who is advising on preparation of home economists; Beth Coghlan, Seattle Public Schools, who is helping analyze training programs for small business managers; and Earl M. Bowler, University of Texas, who is preparing a report

(*Continued on page* 45)

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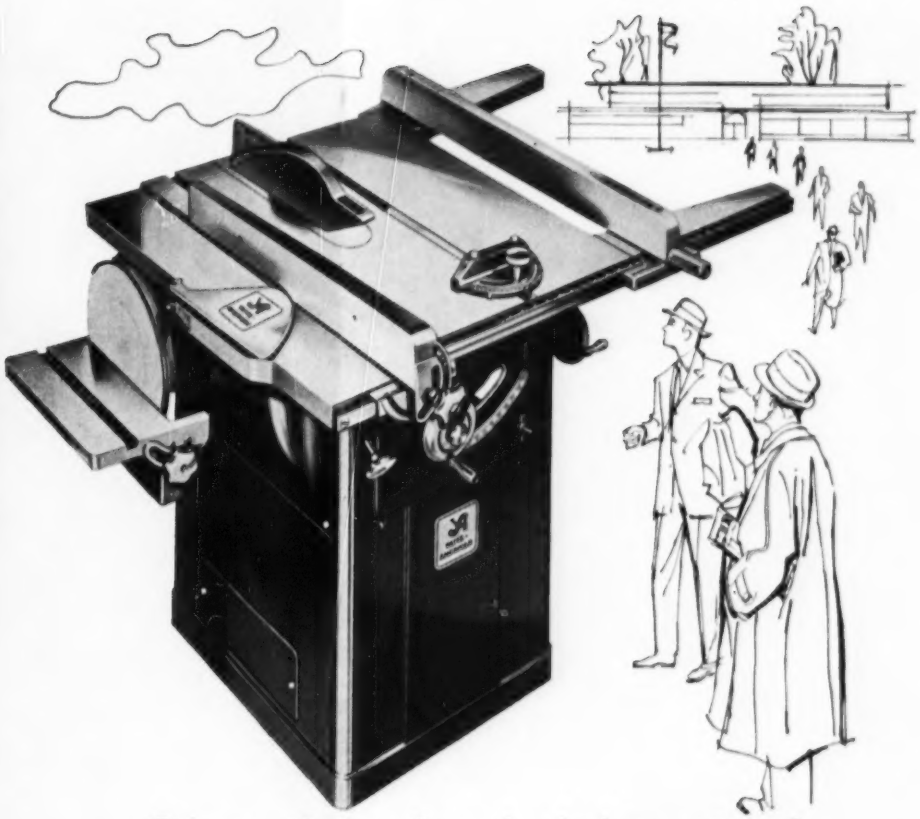

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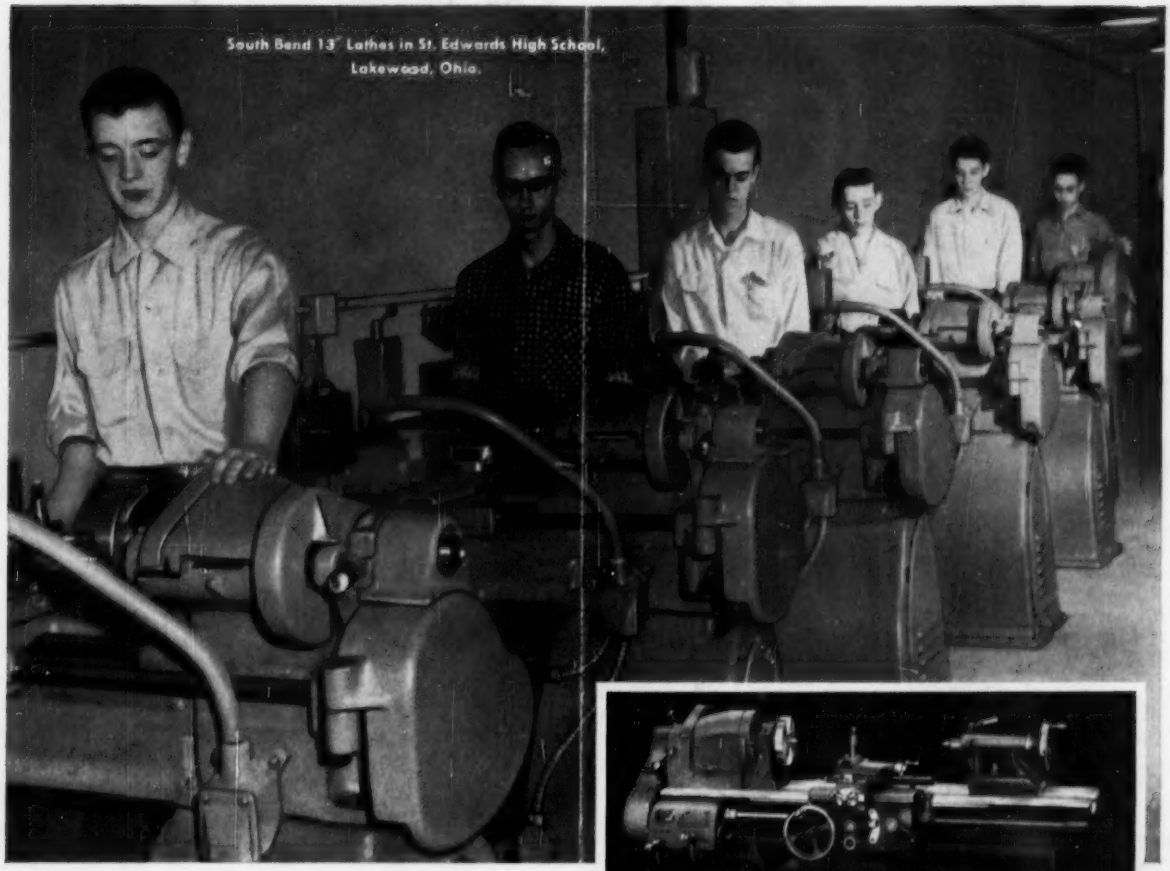

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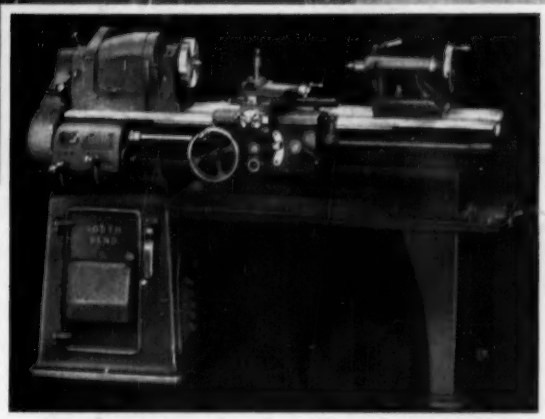

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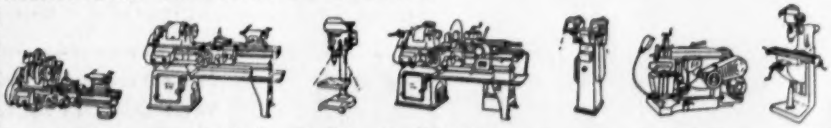

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